ENGINEERING NEWS-RECORD

U. S. Engineer dredge cuts into final plug to complete new Wax Lake outlet for Atchafalaya River

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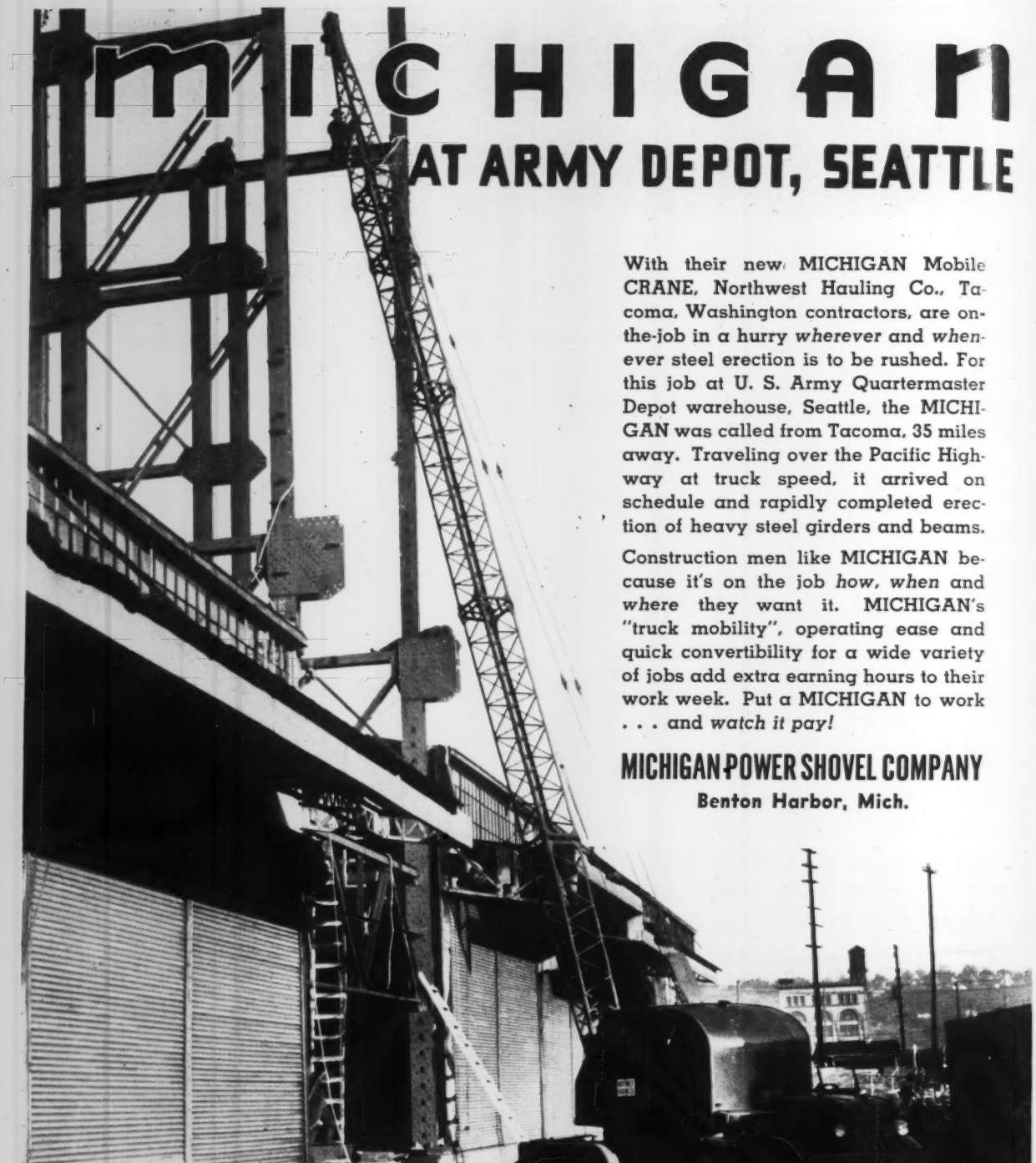
AT ARMY DEPOT, SEATTLE



With their new MICHIGAN Mobile CRANE, Northwest Hauling Co., Tacoma, Washington contractors, are on-the-job in a hurry *wherever* and *whenever* steel erection is to be rushed. For this job at U. S. Army Quartermaster Depot warehouse, Seattle, the MICHIGAN was called from Tacoma, 35 miles away. Traveling over the Pacific Highway at truck speed, it arrived on schedule and rapidly completed erection of heavy steel girders and beams.

Construction men like MICHIGAN because it's on the job *how, when* and *where* they want it. MICHIGAN's "truck mobility", operating ease and quick convertibility for a wide variety of jobs add extra earning hours to their work week. Put a MICHIGAN to work . . . and *watch it pay!*

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The Week In Engineering and Construction

ENGINEERING NEWS-RECORD • DECEMBER 25, 1941

War expected to step up defense construction work

Expansion of industry under the "Victory Program" expected to make new call on construction for large additions to capacity of arms and munitions plants

To the construction industry, formal entry of the United States into the war means that its defense job, which had begun to show signs of tapering off, will be replaced by a war job of at least equal magnitude. Construction—as the job from which others start—gets going faster and ends sooner than any other phase of an industrial effort like modern war. Before Pearl Harbor, the bulk of the plants, the cantonments, the air and naval bases required by the defense program were well under way; many of them were finished or approaching completion. There was more work coming along all the time in moderate volume, but the first impetus was over.

Conflicting philosophies

Within the Administration and the defense agencies it is generally believed that a controversy raged as to the next step. There were those—strongly represented in the War Department—who were reasonably well satisfied with the armament production schedules as set up within recent months. These schedules, broadly, provide that monthly expenditures on defense, now at about a billion and a half, should rise gradually over the next year and a half to about three billion. This objective could be achieved with the industrial and military construction already laid out plus comparatively minor additions and expansions and with conversion of many civilian factories to munitions work.

Another group—led by Donald Nelson and Leon Henderson—argued that, to win the war, these production objectives must be vastly stepped up, that expenditures must rise to at least five billions a month. This of course involves a whole new wave of industrial construction and of new arms plants.

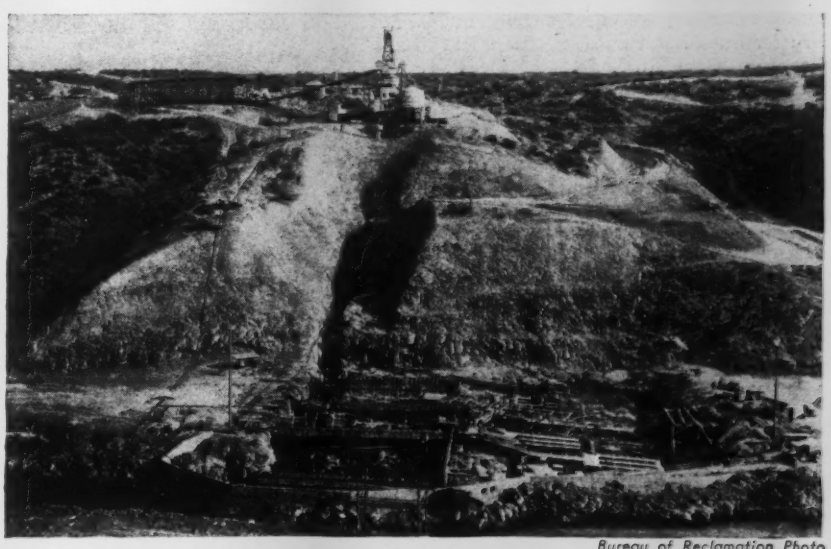
Japanese bombs won the argument for the "Victory Program" group, and the Victory Program is now the official administration objective.

Preliminary OPM estimates indicate a volume of construction during 1942 of about a quarter billion higher than the record 1941 level—estimated by OPM at eleven billion. The OPM estimates that more than eight and one-half billion of 1942 work will be for defense, with large increases in the rate of expenditure for industrial plants and military facilities. Of some eleven billion so far appropriated for defense construction, about 44 percent is now in place, and construction expenditures are running at a rate of a half billion a month. This amounts to a third of all monthly defense expenditure.

Five billion a month

In the main, the new Victory Program is still hardly more than a decision that we prepare to spend five billions a month. It has not yet been more than roughly translated into production schedules for particular types of armament, much less into construction projects for the new facilities needed. But it is plain that a plant construction program of the same order of magnitude as that initiated a year ago is in the cards.

In one phase—medium tank production—the Victory schedules were worked out over the past two months, and the results here give an idea of what can be



Bureau of Reclamation Photo

Construction of Keswick Dam well under way

Excavation is about complete for the left abutment of Keswick Dam, being built by the Bureau of Reclamation 9 mi. downstream from Shasta Dam in northern California, while on the opposite bank of the Sacramento River carpenters are shown at work on forms for the foundation of the fish trap and spillway sections. First concrete is being placed for the spillway apron at the right. At the top of the excavation are the cableway head tower and concrete mixing plant, with sand and gravel storage bins at the left.

Contract was awarded August 15, calling for a concrete dam of gravity section 125 ft. high and 800 ft. long to serve as an afterbay dam for the Shasta power plant, and to provide 75,000 hp. of additional power.

The general contract is held by Atkinson-Kier, which calls for the placing of 96,000 yd. of concrete.

expected. As originally laid out, the tank program called for construction of the great Chrysler tank arsenal plus some additions, mostly machinery, to a number of locomotive works. Under the new plans an addition, twice the size of the original, will be made to the Chrysler arsenal and both Ford and General Motors are to build tank arsenals. Moreover, additional capacity, some of it involving new floor space, will have to be made by suppliers of transmissions, armor, engines, and the like.

Not all armament schedules will be stepped up to this extent. A special factor arose in this case because military views of the importance of tanks was greatly modified by the Russian war.

The new plane production schedules are less well established, but already the objective of a capacity of 500 heavy bombers a month in 1943 has been stepped up to 1,000 a month in that year. This will involve construction of six to ten more big mid-western bomber plants similar to those now under construction. It will also require expansion of capacity for engines, propellors, bombs, guns, perhaps aluminum, and a host of other auxiliary products. And other capacity in other types of aircraft is also due to expand, though not to the same extent.

Similar capacity expansions are to be expected in most other major types of armament.

Expansion of services

Beyond this industrial construction, considerable expansion of strictly military facilities is certain. It is significant that one of the first effects of the war was the eleventh-hour insertion into last week's supplemental appropriation of an extra half billion for Air Force ground facilities. Great additions to airfields, hangars, shops, and the like will be demanded by increasing plane production. And the sudden realization that this country is open to air attack emphasizes the importance of enough airfields to permit ready concentration of forces at any threatened point.

Cantonment work uncertain

Extent of cantonment construction is something of a question mark. The revised draft law and the quicker tempo of inductions makes evident the intent to expand the Army rather rapidly. Whether this results in a great deal of cantonment building obviously depends on the course of the war—on whether large numbers of men are sent abroad. Most informed observers expect quite a bit of contonment work. Except for last minute changes, the most recent ten-billion appropriation was based on pre-war needs. A big war appropriation request supporting the new programs is expected in January.

TVA builds temporary lift span at Kentucky Dam

Pending completion of Kentucky Dam, about 22 miles above the mouth of the Tennessee River at Paducah, Ky., the Tennessee Valley Authority has erected this temporary lift span at the entrance of the navigation locks to raise the tracks of the Illinois Central Railroad and permit river craft to enter the locks. After the dam is completed, the railroad will be relocated over the top of the dam and the lift span removed.

Kentucky Dam is TVA's largest single river development project and is scheduled for completion in 1945 at a total cost of approximately $105,000,000.

Motorists pay excess taxes for use of roads

American motor vehicle owners during 1940 paid $411,470,000 more than their share of the cost of highways and streets, according to compilations just released by the National Highway Users Conference.

Official figures for state highways and estimates for local roads and streets show total highway expenditures of $1,560,464,000 during 1940. The motorists' share of street and highway costs for last year was $916,351,000.

Special motor vehicle taxes paid to states, counties and cities for highway purposes in 1940 amounted to $1,374,514,000. After deducting administrative costs, the net special highway user taxes available for highways amounted to $1,327,821,000, or 85.1 percent of total expenditures for roads and streets.

Highway expenditures by states, counties and cities included $806,999,000 for rural state highways; $512,568,000 for secondary, county and local roads, and $240,897,000 for city streets. Highway users accounted for 83 percent of the cost of rural state highways, 34 percent of the cost of secondary and local roads and 30 percent of the cost of city streets.

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New funds makes defense housing a billion-dollar program

House committee adds $300,000 for work, which is in addition $300,000,000 made available in the ten-billion dollar supplemental appropriation just passed. Big prefabrication program expected

Funds for defense housing are being more than doubled, and within a few days it will be a billion-dollar program. Approved by Congress last week was a $300,000,000 sum to be spent by Federal Works Agency under the Lanham Act. A day earlier the President signed the ten-billion dollar supplemental defense appropriation (*ENR*, Dec. 18, p. 855), which included another $300,000,000 for "temporary" defense housing.

Funds previously made available for housing defense workers and families of soldiers and sailors totalled about $430,000,000, bringing the total past the billion mark. Thus, defense housing now becomes a bigger proposition than the old slum-clearance housing program, which was set up as a $880,000,000 job, though $200,000,000 of this sum was never used.

Authorization for the new Lanham Act money is contained in legislation which has passed both houses of Congress though in widely divergent forms. The House version of the bill would make major changes in the administration of defense housing, while the Senate, as predicted, eliminated most of the changes. Absent from the Senate version are House provisions which would have increased the allowable average cost from the present $3,500 per dwelling, required that all the work be done by the Public Buildings Administration, required that rentals be on a self-supporting basis and forbidden ever turning over the projects to slum-clearance agencies. These differences will have to be thrashed out in conference.

The Senate inserted a provision forbidding the use of fee contracts in construction of Lanham Act housing.It also inserted clauses to permit housing of government workers in Washington and low-ranking officers of the Army and Navy.

Both houses agree on a clause requiring that defense housing projects pay local taxes. They agree also in requiring that housing of a permanent type be of conventional design in accord with local practice. This would seem to end the hopes of builders of prefabricated projects that they will be given a chance to supply permanent as well as demountable houses.

Big prefabrication program

Despite this blow, the prefabricators are assured of a big program by the other $300,000,000. This money was not appropriated under the Lanham Act but under a law of last summer which puts practically no restrictions on its use. It is intended, with this money, to provide trailers as a stopgap measure and to build dormitories for single workers and demountable houses around ordnance and powder plants and shipyards.

How many demountable houses will be built is not yet clear. The President originally asked for $200,000,000, saying that he intended to have 50,000 such units built. The Senate, however, increased this sum by $100,000,000, suggesting that some 75,000 units may be built. This compares with about 11,000 demountable units in present program.

What agency will do the work is also uncertain. The decision probably rests on the outcome of Judge Rosenman's pending reorganization of the housing administrative set-up.

Drinking water standards up for final revision

Final recommendations concerning revisions to the U. S. standards for drinking water quality soon will be referred for adoption to Surgeon-General Thomas Parran. A special advisory committee of representatives from federal, state, municipal and scientific organizations, appointed by the surgeon-general almost a year ago, is about ready to make its final report, according to J. K. Hoskins, secretary to the committee and chief of the sanitation section, U. S. Public Health Service.

Present standards, first promulgated in 1914 and revised in 1925, are to be changed "to conform more closely to current requirements for water supplies." The first draft of the revision, which was made public last June, provided for: A change in the size of water samples used for bacteriological examinations (from 10 milliliters to 100 ml.); examination of samples from points in the distribution system in addition to those now taken at the treatment plant; daily sampling of supplies when results indicate significant pollution; and higher permissible limits for copper and zinc.

Photo by Lincoln Electric Co.

An 83-mile pipeline completed in 30 days

An 83-mile, 10¾-in. diameter steel oil pipeline was recently completed in the record time of 30 days. An average of 12,500 ft. was laid daily, joints being arc welded in three passes.

The pipeline was laid through extremely hilly terrain over the Santa Monica mountains at an elevation varying between 950 ft. and 1,700 ft. To follow the hills and valleys many pipe bends were required. Slopes of 60 deg. were not unusual. Bending was done with the pipe cold, but in many instances while the weld was still warm.

The new line will deliver 22,000 barrels of oil daily from Ventura, Calif., to the Wilmington refinery of Shell Oil Co. at Los Angeles. The construction contract was held by Macco-Robertson Construction Co., Clearwater, Calif. Cost of the project, which used 9,000 tons of steel, was about $2,000,000.

Douglas Dam out, TVA starts Fontana, South Holston and Watauga Dams

Congress substitutes slower and more expensive projects for the OPM recommended Douglas Dam on the French Broad River.

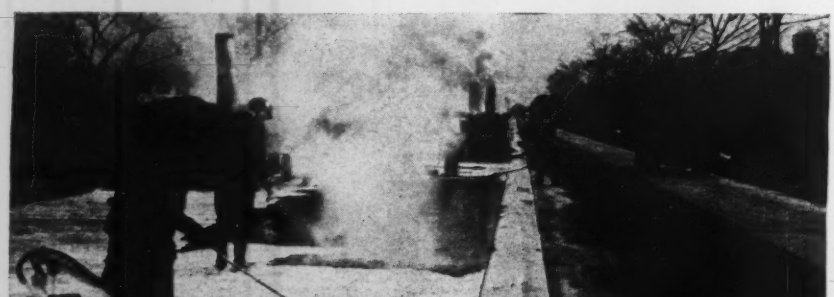
Douglas Dam on the French Broad River was left out of the $10,000,000,000 Third Deficiency Bill signed by the President last week. Included, however, was $49,000,000 for the Tennessee Valley Authority to start Fontana Dam on the Little Tennessee River and two other hydro projects, one on the South Fork of the Holston River about 7 mi. southeast of Bristol, Tenn., and the Watauga dam at Cardens Bluff on the Watauga River about 10 mi. upstream from Elizabethton, Tenn. which were substituted in the emergency program for Douglas Dam despite pleas of the President and William L. Batt, Director of the Materials Division of the Office of Production Management. Also included in the work to be done under the appropriation are additions to the Watts Bar and Sheffield steam plants and 324,000 kw. in additional generators at existing TVA dams. Completion of the newly authorized projects will bring the installed capacity of the TVA power system from its present 1,050,000 kw. to more than 2,600,000 kw. This addition includes added units of the normal program and the first and second emergency supplements which are described in ENR, Dec. 18, 1941, p. 866.

According to Mr. Batt of the OPM, Douglas Dam is especially important because its construction would make available, beginning with the early summer of 1943, almost 100,000,000 kw.-hr. per year. The South Holston and Watauga projects will cost a total of $18,000,000 as against $32,000,000 for Douglas Dam and will not be available for power until 1944. The Holston and Watauga projects have a combined drainage area of slightly over one-fourth that behind Douglas Dam and the average streamflow of the two power projects is less than one-third that at the Douglas site.

The objection in Congress to the Douglas site has been based on the value of farm lands flooded by the reservoirs and economic loss to canning and other supplementary agricultural industries in the area disrupted by taking fertile land out of production. TVA did not originally recommend construction of this project on account of these undesirable features, submitting them only when it was apparent that Congressional authorization for work would not be received in time to make it possible to produce the 1,000,000 kw. of added power by 1943 that the industries in the Valley are scheduled to require.

Fontana highest in eastern U. S.

The Fontana project will be the highest dam east of the Mississippi River. It will be a concrete structure 450 ft. high and will store about 1,500,000 acre-ft. of water in a reservoir extending 22 miles. It is expected to require 36 months for construction and will produce 200,000 kw. at the dam in addition to implementing the low flow at two Aluminum Co. of America dams and at all but one of the main Tennessee River dams. TVA has already commenced purchase of construction equipment and materials for the dam, and construction of housing facilities at the site will be under way shortly. The Fontana site, long held by the Aluminum Company of America, is to be transferred to TVA in a contract which also provides for the operation of the Aluminum Co.'s hydro projects on the Little Tennessee and its tributaries as a part of the TVA system in order to obtain the maximum power available from stream flows.



Ohio lays its first light-deflecting median strip

The Ohio Department of Highways is completing its first installation of light deflecting median strips of the scored white-cement type, detail of which is shown in the illustration at right. The project is on Route 18, in Summit County, near Akron, which is known as the Akron-Medina road.

The new paving work covers 3.285 miles with two 24-ft. roadways separated by the light deflecting median strip, which varies in width up to 4 ft. Of the total length, 1.68 miles is being paved with brick, and the balance with concrete.

Two types of scored dividing curbs are being used. On the brick section there is a continuous stretch with 1½ in. scores, while on the concrete section, inset panels of the curb are being placed at intervals of every 20 ft.

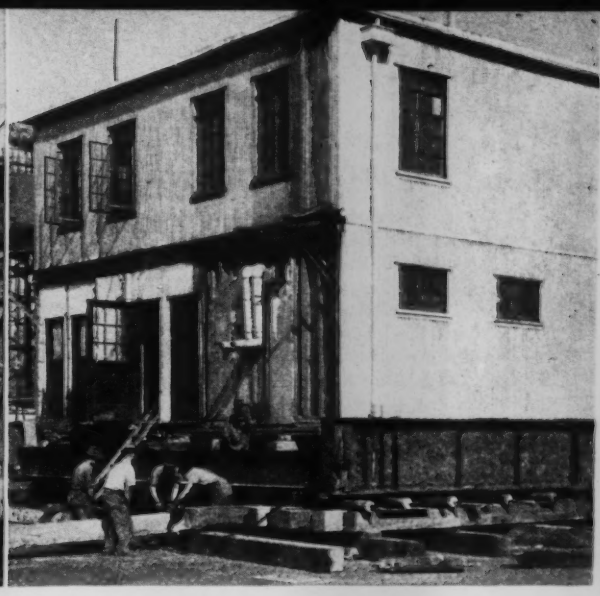
A. J. Baltes, Norwalk, Ohio, is general contractor.

Mud Mountain Dam fill completed to record height

The fill for Mud Mountain Dam on the White River near Seattle, Wash. has reached its crest and the contractor, Guy F. Atkinson Co. of San Francisco, is now engaged in clean-up operations.

The dam, of earth and rock, rises to a height of 425 ft. and fills a V-shaped canyon for a distance of about 1,600 ft. It is 200 ft. wide at the base and 700 ft. at the crest. Installation of outlet control works is expected to be completed next spring.

The project is being built under supervision of the U. S. Engineer Department.



Building loaded on barges after boat trip down East River. Contractor is waiting for tide to ebb before starting to unload the structure by a procedure calling for careful balancing of loads.

For its land trip the building moved over 6-in. diameter rollers on wooden and steel beams.

Field office goes for a boat ride

Rising tide and a variable lever-arm were cautiously balanced in the carefully timed loading of a 33x107-ft., two-story building onto two barges for moving the structure 7 miles down the East River at New York City. The building is the field office of the Tunnel Authority and it was moved from the Long Island City shaft of the Queens-Midtown tunnel to near the Brooklyn shaft of the Battery-Brooklyn Tunnel project. The office, which weighs 290 tons, has reinforced-concrete floors and the walls consist of 2x4-in. members on 16-in. center as studding with ⅞-in. thick tongue and groove sheathing covered by building paper and 24-gage corrugated sheet metal.

The structure was lifted from its original foundations by a group of 60-ton hydraulic jacks. To eliminate any wracking or twisting of the structure while in transit a special carriage was employed consisting of a 42-in. deep 68-ft. long plate girder on either side of the building and 21-in. I-beams placed crosswise under the structure such that these members rested on the lower flange of the girders. Under the carriage the wooden runner or track beams surmounted by 6-in. diameter rollers which consisted of extra-heavy pipe filled with concrete, were inserted. Moving the building to the waterfront was accomplished by means of a 5-part cable block and tackle attached to the hoisting drum of a 13½-ton truck crane.

Biggest problem encountered was the actual loading and unloading of the office from the land to the water carrier. This work was complicated by tide variations, weather conditions, increase in draft of the water carrier as the building was loaded, and the inability to obtain large scows or boats. To simplify loading and unloading and to keep the building nearly level at all times, two barges were used instead of one, as shown by the accompanying drawing.

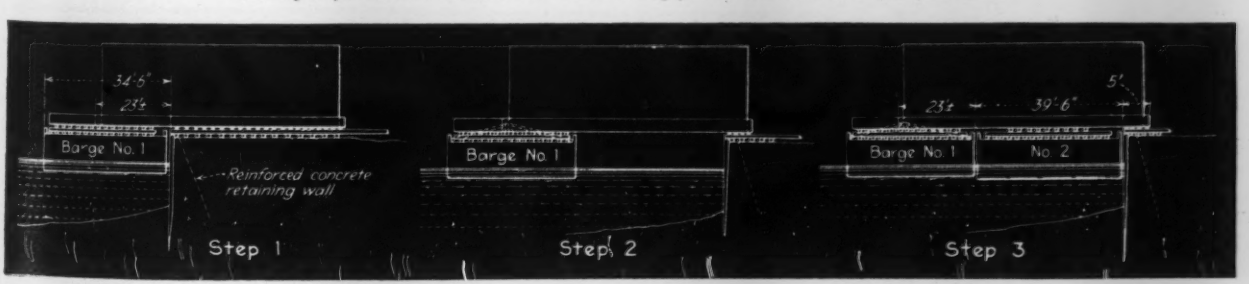
This method, in brief, was to cantilever the building over the stringpiece about 25 ft. and then at exactly 50 minutes after ebb tide Barge 1 was moved in under the building. As Barge 1 started to take the load the building's under carriage acted as a simple beam instead of cantilever. Barge 1 with one end of the carriage securely attached to it, was then moved out from the stringpiece at the rate of 2¼ ft. each five minutes or at the correct rate to make the tide-rise equal to the increase in the barge's draft due to the increasing load.

When the distance between Barge 1 and the dock exceeded by one foot the 39½-ft. width of Barge 2, the latter carrier, loaded with a water ballast of 123,000 gallons, was moved in under the building and blocking added above this barge to contact the building's under-carriage. The water ballast during the next 20 minutes was lightened sufficiently by two 6-in. and two 3-in. centrifugal pumps to make Barge 2 support its share of the load. As the tide continued to rise the building was lifted free of the dock and was supported on the two barges, which were lashed together such that the office building and carriage acted as a strongback.

Two tugs towed the building and barges down the East River to a dock near the foot of Hamilton Ave., Brooklyn. Unloading called for a reversal of the steps during the loading procedure.

John L. Washbourne, Inc., New York, with Roy Hedenberg superintendent on the job, as a subcontractor, did the work for the George H. Flinn Corp., New York. Old Singstad is chief engineer for the Tunnel Authority.

Loading steps are illustrated below. The unloading process is a reverse of this procedure.



Air raid shelters for 20,000,000 in Britain

There are now air-raid shelters for 20,000,000 persons established in Great Britain, and the total is rising each week, according to a report made by Lord Snell before the House of Lords early last month. So far, 555,000 Morrison shelters have been allocated and plans call for a weekly output of 20,000. Bunks have been installed in 80 tube stations, with accommodations for 725,000, and 1,500,000 bunks for Anderson shelters have been delivered to local authorities. Half a million more of these shelters were made available the first of December, and the number will be increased by 100,000 a week until 4,000,000 have been supplied. Eleven thousand front-line rest centers have been established in England and Wales.

About 40,000 building employees have been allotted to shelter work, and the country has been divided into A, B, and C areas; at present practically all resources are being concentrated on the first two classifications—areas of special national importance and those less necessary to war efficiency. This report was made available through the courtesy of "The Surveyor," engineering magazine published in London.

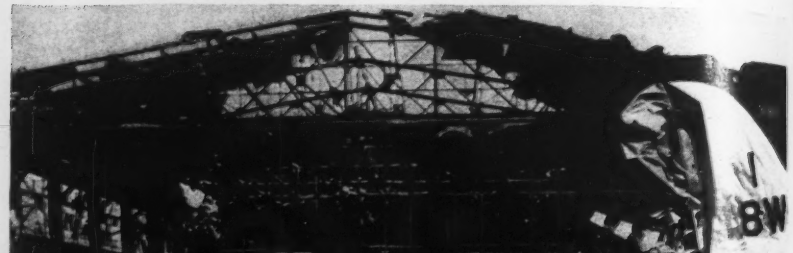
• • •

All buildings vulnerable to direct bomb hits

Speaking before a meeting of 350 real estate men in New York City last week, Harry M. Prince, consultant in the Office of Civilian Defense, who made a survey of bombed buildings in London a year ago, stated that not a single building in New York could withstand a direct hit by a 2,000-pound bomb of the land-mine type used by the Germans in their raids over London.

The most vulnerable buildings would be the 56,000 old-law tenements of the six-story type common on the lower East Side. "A bomb falling anywhere near," he said, "would not only collapse them completely but would make them firetraps of the worst sort." "Construction of bomb shelters in the basements of these tenements would require a shelter roof reinforced sufficient to support a load of 600 lb. per sq. ft. in contrast to the present floors of the buildings, which can withstand only 50 lb. per sq. ft.," remarked Mr. Prince.

Contrary to general opinion, an investigation of bomb damage in London showed that plate glass windows reinforced with wire mesh were the most vicious and deadly kind in a bombing attack. London stores, he said, had found that the safest type of window was one almost boarded up, with a two or three foot "peep-hole" in the center.



Wide World photos, Inc.

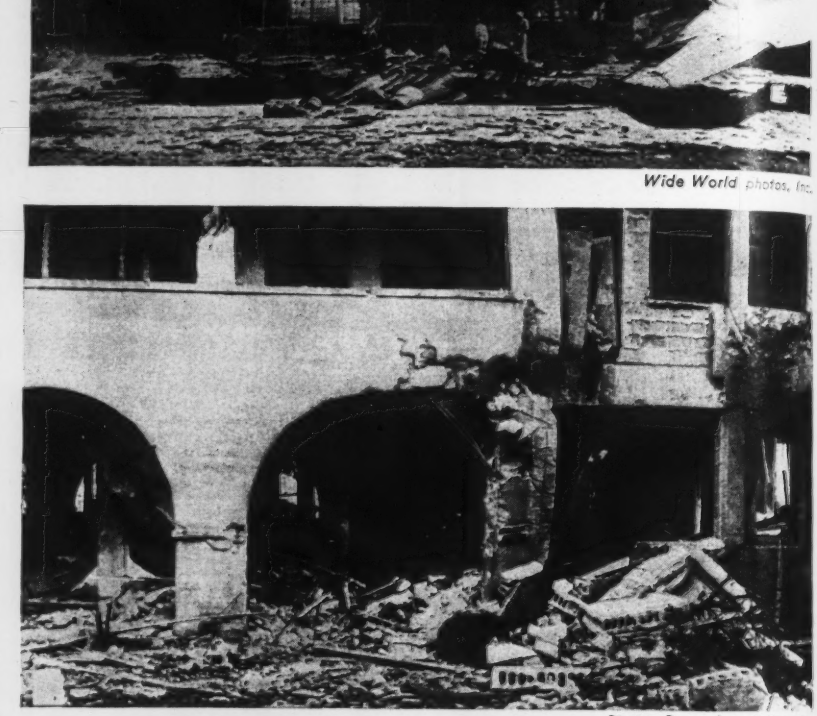


Photo: Press Association, Inc.

U.S.-designed buildings get baptism of bombs

It is true what the British say about bombing. These first pitcures of damage to United States property in Hawaii furnish tragic evidence of the effect of demolition bombs. While knowledge of what size bombs were used and where they landed would be helpful in evaluating the resistance of the above buildings, it is nevertheless possible to list a few pertinent facts:

Bomb blast shatters glass windows, making deadly missiles of the particles.

Suction following blast blows roof and wall coverings outward. They do not blow inward under the much greater blast pressure because the framework holds them, but they may be torn loose, which then permits the much longer-acting suction force to dislodge them outward. Also note window frames bent outward in upper picture.

Steel framing, including long span trusses, can take extreme punishment without collapse.

Breaking of glass permits blast pressure to pass through such light framing as is used for hangar doors without destroying it.

Explosions near concrete members tend to shatter the reinforcing protection and then bend the steel, destroying its usefulness.

The continuity afforded by reinforced concrete construction is useful when a column is destroyed.

The buildings illustrated are barracks and a hangar at Hickam Field.

Nine million set aside for Illinois highway

The Cook County, Illinois, board of commissioners has been authorized to expend $9,000,000 in motor fuel tax funds for improvement of Edens Parkway (State Aid Road 263) from Bryn Mawr Avenue, Chicago, to the Cook-Lake County line, according to announcement by Walter A. Rosenfield, director of the Illinois State Department of Public Works and Buildings.

The project contemplates a 12-mile express highway, which is to consist of two four-lane concrete pavements, with 20 highway and two railroad grade separations. The improvement will serve as an outer link in the proposed Northwest superhighway plan.

Structural engineers select buildings for San Francisco air raid shelters

About 250 downtown structures, preferably more than five stories high, are designated as refuges for people on the streets. Services of Am. Soc. C. E. members offered to nearby cities.

An air raid alarm in San Francisco on the evening of December 8 did not result in an effective blackout; some did not take it seriously, few knew exactly what to do. The wrathful reaction of the military authorities on the following day served a useful purpose and an alarm four days later produced a blackout pronounced well nigh perfect and this without the arbitrary method of cutting off the main power supplies which works hardship and disadvantage in hospitals, communication buildings, etc., such as would be justified only in dire necessity.

Civilian organization has progressed with extreme rapidity and there has been full cooperation, once instructions were given, in making blackouts complete. Notable service has been rendered by structural engineers in a survey of buildings in the downtown area. Some 250 buildings have been selected and designated as public air raid shelters. These buildings are being marked with an insignia consisting of a circle, orange in color, beneath which are the words "Air Raid Shelter" in white relief. White arrows bearing these same words mark the direction of traffic. The proposal is later to paint the letters with luminous paint.

Qualified buildings

In selecting suitable buildings, only fire-resistant structures are considered; preference is given to those of five stories or more in height. Buildings with central light shafts (down which even small bombs might penetrate to the ground floor) cannot be used nor should buildings used for communications, hospitals, etc. The possibility of "no power" makes it necessary to consider stairways if second floor or basement is to be used instead of the ground floor. Primary importance in selecting buildings is *dispersion:* (1) to make it unnecessary for people on the street to go far to find shelter and (2) to avoid any large gathering in one place.

The buildings selected as public raid shelters are to provide refuge for people who happen to be on the street at the time of the alarm. Tenants are to go to the central portion of the main shaft of the building, preferably on the lower floors. Part of the plan is the instruction of building employees with regard to directing and handling those coming in for shelter in time of emergency. A letter from the Mayor goes to the building management in each case explaining the need for emergency use of the building and asking for cooperation with the air raid warden service.

Engineers have been in special demand for committee work; special calls for them have come in in connection with blackout provision at hospitals, bakeries, smelters and other industrial plants where electricity shut-offs are to be avoided if at all possible. Offer of the services of engineers to mayors in nearby cities was made by the San Francisco Section, Am. Soc. C. E. in accord with a resolution authorizing this action during the emergency, passed at a Section meeting immediately following the declaration of war.

Eight 5-hp. sirens

In order that everyone may be apprised promptly of the order (1) to black out immediately or (2) to take shelter if they are away from home, the city has installed eight 5-hp. sirens at various points about the city whence the sound should carry to all thickly settled areas. These are inter-connected for simultaneous operation from a single control.

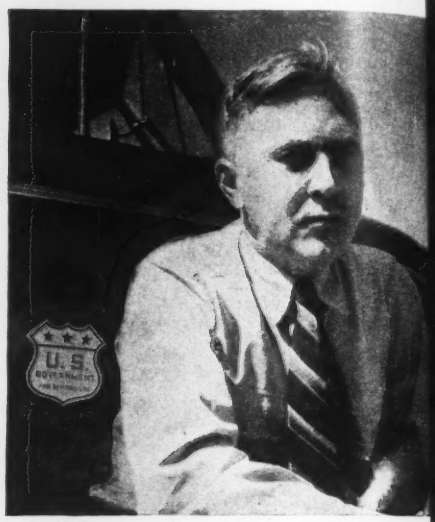
Dredge removes last barrier in Wax Lake relief outlet for Atchafalaya River

The U. S. Engineers 15-in. hydraulic dredge "Pullen" has started removal of the last plug in the new Wax Lake channel to the Atchafalaya River in Louisiana which will give the river an additional outlet to the sea. Wax Lake outlet, a dredged channel 15 miles long, 45 ft. deep and 300 to 400 ft. wide at the bottom, connects Grand Lake in the Lower Atchafalaya Basin with Atchafalaya Bay on the Gulf of Mexico. It is designed to by-pass 275,000 c.f.s. from the natural outlet at Morgan City, 10 miles to the east, in times of superflood when the Atchafalaya is carrying 1,500,000 c.f.s.

Construction of the canal and two new bridges to carry the T. & N. O. Ry. and U. S. Route 90 across the outlet was done under several contracts. The New Orleans District Engineer Office is utilizing the "Pullen," one of its maintenance dredges, for removal of the last of a total of 57,300,000 cu. yd. of excavation from the channel at the site of the two bridges. Material from underneath the bridges, which were built largely on dry land, is being removed by government forces with a slackline cableway drag outfit. Lieut.-Col. Clark Kittrell, district engineer at New Orleans, is in charge of the Atchafalaya flood control project which includes the Wax Lake Outlet.

Details of the Twin City ordnance plant are discussed by DAVID A. DALY, (seated at left) president of the Brothers, Inc., St. Paul, and COL. GEORGE B. W... BRIDGE, vice-president of Walbridge Aldinger Detroit, Mich. The two firms are the general contra... for the plant.

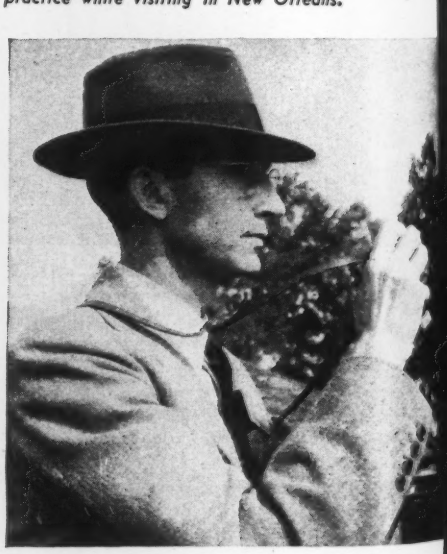
The expression of WALTER C. CAREY (below) prep... indicates that he wasn't particularly enthused about ... at work" pictures. Out of camera range he is the ad... senior engineer of the New Orleans District, U. S. ... gineers, in charge of bank revetment operations.



MEN AT WORK

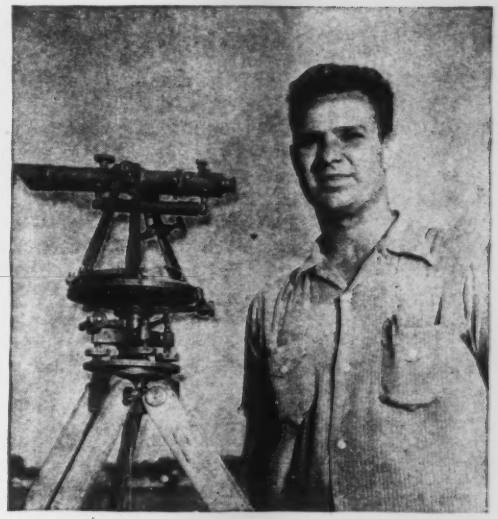
When the "M" Street underpass at Rock Springs, Wyo., which is in the background below, was completed, the three engineers shown were present for the final inspection. At the left is E. E. ANDERSON, superintendent for Frank M. Kenney, contractor for the work, in the center R. C. PIKE, resident engineer for the Wyoming highway department, and at the right H. R. DAVENPORT, associate highway engineer at Denver for the Public Roads Administration.

TED BOGARDUS (below), assistant city engineer ... Meadville, Pa., takes a "sight" on municipal construc... practice while visiting in New Orleans.



the well dressed resident ...eer is wearing in Alabama ...icted by DAN CHURCH ...), who is supervising pav... ...perations for the city of ...e.

...RGE J. SANDER (below), ...intendent of the Forcum-...s Co., keeps a critical eye ...aving operations for the ...irport at Baton Rouge, La.



HARRY L. FISHER (left above), city engineer of Mobile, Ala., and T. P. KROUTTER, maintenance engineer, watch a fighter plane take off from the municipal airport built by Mr. Fisher some years ago and now taken over by the Army.

"The man behind the gun" at the left is J. W. WALKER, field engineer for the Forcum-James Co., contractors on the Baton Rouge, La., airport paving job.

...M. GALLOWAY (below), assistant to the town engi... of Montclair, N. J., finds out how Mississippi mud ...moved at the city of New Orleans water purification ...nt.

Braving a chilly rain at the new Marquette Cement Co. plant at Des Moines, Ia., are left to right below: O. W. CROWLEY, secretary, Central Branch, AGC, and ARTHUR H. WALTER, and HAROLD NEUMANN, three engineers who comprise the Des Moines firm of Arthur H. Neumann & Bros., Inc., contractor for the new plant.

MEN AND JOBS

L. A. Alley is resident engineer for Linberg Engineering Co. of Burlington, N. C., on the construction of a new water and sewer system at Manteo, on Roanoke Island, in North Carolina. The project includes the drilling of 16 wells, the construction of a 300,000-gal. reservoir, the erection of an 80-ft. tank and the laying of 17,500 ft. of water mains and 13,500 ft. of sewer mains. The project will cost about $140,000.

A. E. Mull is superintendent for the Southeastern Construction Co. of Charleston, S. C., on the construction of a mess hall, dock, barracks and other buildings at the Naval Section Base at Fort Caswell, N. C.

William E. Blaser, of Cleveland, an employee of the county engineer's office since 1911 and currently head of the bridge department, has been promoted to the office of chief deputy engineer. He succeeds **William D. Young,** who resigned to become city utilities director.

W. A. Arth of Dallas, Tex. has been named state director of the Public Work Reserve and stationed in San Antonio, Tex. He succeeds **John C. Douglass,** of Fort Worth, Tex., who has been transferred to the state engineering staff of WPA. Mr. Arth has been on the regional engineering staff of WPA in New Orleans, La.

M. C. Mobery, former engineer with the architectural firm of Fisher, Fisher & Hubbell, of Denver, on the U. S. Army Engineer's cantonment project at Colorado Springs, has resigned from that position to accept a connection with the Panama Canal Commission in the capacity of engineer, at Panama City.

Joseph Marin has been appointed professor of engineering mechanics by the board of trustees of Pennsylvania State College. Dr. Marin is now associate professor of civil engineering at the Illinois Institute of Technology and will begin his work at Penn State Feb. 1.

Richard Hazen, A. W. Sawyer and **Carl A. Prenander,** of the Pirnie Engineering Co. of New York, on Dec. 3 began a survey of proposed sources of supply for a new water system to be built at Wilmington, N. C. The survey is expected to take about two months for completion.

Francis H. Werneke, who received his civil engineering degree at the Duke University School of Engineering, Durham, N. C., with the class of 1941, now is engaged on the construction of a new addition to the General Electric plant at Schenectady, N. Y.

William Drew, who received his civil engineering degree at Duke University with the class of 1941, now is an ensign in the Naval Reserve and is serving as Inspector of Naval Ordnance at the General Electric Co., Schenectady, N. Y.

Claude V. Wiley, civil engineer with the South Dakota State Highway Commission since 1937, has resigned to accept a position as engineer with Boeing Aircraft Co. of Seattle, Wash. Mr. Wiley graduated from South Dakota State School of Mines in 1933 and worked with Summit Construction Co. of Rapid City from 1933 to 1935. During 1936 he was with the Peterson Construction Co. of Minneapolis, Minnesota.

Fred Quinnell, city engineer and commissioner of public works at Roundup, Mont., for the last 20 years, has been named acting manager of Bozeman, Mont., to serve until **Maj. M. E. Henderson,** former city manager, is released from duty with the 163d Infantry at Fort Lewis.

C. F. Loehr, formerly with the Standard Oil Co., of Indiana, at their engineering offices at Gary, Ind., has resigned from that connection and is now affiliated with the Bureau of Reclamation at Denver in the capacity of assistant engineer.

C. L. Thornton, former engineer with the Colorado state highway department, at Denver, has resigned to accept a position with the War Department in the utilities division. He will be stationed at Fort Eustis, Va.

Lt. Col. Stanley B. Wiggins has been named construction quartermaster for the $30,000,000 Keystone Ordnance Works to be erected near Geneva, Crawford County, Pa.

Capt. Claren W. Meldrum, commanding officer of the Ravenna (Ohio) ordnance plant for two months, has been assigned to the Keystone ordnance plant at Geneva, Pa., effective Jan. 5. His successor has not been appointed. **Capt. Norman E. Gillespie,** public relations, plant protection and safety officer at Ravenna, was transferred to the Illinois ordnance plant at Marion, Ill., as public relations officer. He will be succeeded as public relations officer by **Lieut. Wayne H. Kuhn,** of Lorain, who has been at the Ravenna plant since July. **Lieut. E. H. Johnson** succeeds Capt. Gillespie in his other capacities.

John S. Moore, reclamation engineer and former superintendent of the Yakima project, has been transferred to Denver, where he has been appointed to the position of general supervisor of operation and maintenance division. The new division will have charge of soil and moisture conservation and in addition will have some administrative responsibilities for the work programs of some CCC camps on various reclamation projects.

Lt. David D. Knox, CEC, USNR, is now on active duty at Quonset Point Naval Air Station, Quonset, R. I. He was formerly an expediter with the Electric Boat Co., Groton, Conn.

Lt. Carl Neilsen, CEC, USNR, is now on active duty at Quonset Point Naval Air Station, Quonset Point, R. I., after spending some months in the Bureau of Yards and Docks, Washington, D. C. Before being called to active duty he was an associate engineer with the Bureau of Reclamation on the Columbia Basin Project at Grand Coulee Dam, Wash.

Lt. Robert L. Roberts, CEC, USNR, has been called to active duty in the Bureau of Yards and Docks, Navy Department, Washington, D. C. He formerly was in the design section of the U. S. Engineer office, Huntington, W. Va.

E. W. Hammer, formerly project manager for the George A. Fuller Co. and Merritt-Chapman and Scott Corp., joint contractors on the $30,000,000 Quonset Point, R. I. Naval Air Station, construction, has returned to his previous position, in the office of the Merritt-Chapman and Scott Corp., in New York City.

Charles S. Kirby, of Greensboro, N. C., civil engineer, and **William W. Wallace, II,** of Durham, N. C., mechanical and electrical engineer, have just been employed by the Greensboro, N. C., Housing Authority for work on low-rental building projects. **Ray Warren** is executive director of the authority.

Walter C. Yow, of Asheboro, N. C., has been appointed chairman of the emergency public works committee of the Randolph County Defense Council.

K. H. Spies, associate engineer for the South Dakota State Board of Health, Pierre, S. D., has resigned to take a position with the Oregon State Health Department at Portland.

Typical of the 24 grade separations in Syracuse is the West Onondaga St. underpass. Girders for this bridge are 128 ft. long, weigh 127.6 tons each, and are mainly of nickel steel. Note absence of piers between curbs, which is true with all the other bridges but one.

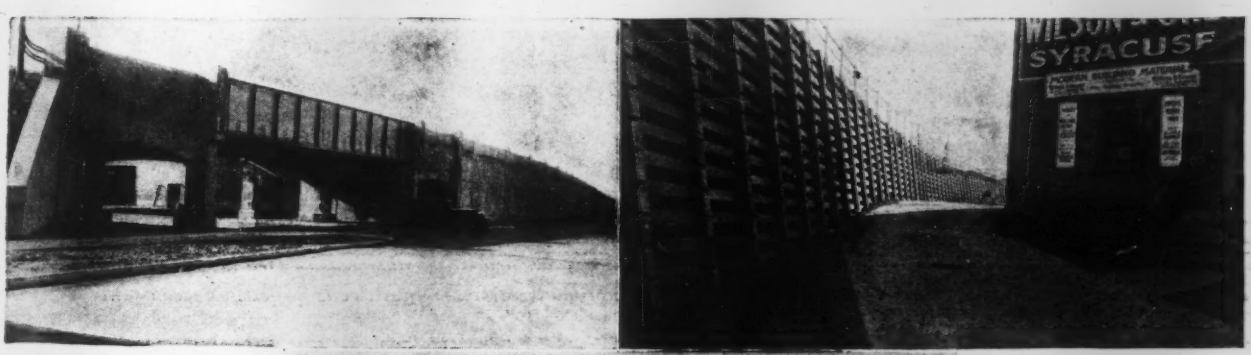
Lifting the Lackawanna tracks off the streets of Syracuse

Due to 24 grade crossings within Syracuse, N. Y., on 2½ miles of the railway's double-track line Lackawanna trains during past years have caused serious traffic congestion within the city's limits. However, all of this was eliminated in November when a $6,500,000 project under construction since June 1940 was completed. Most of the railway tracks have been raised about 19 ft. to provide a 14-ft. clearance at all bridges and more than 1¼ miles of the line is now carried on fill between reinforced-concrete retaining walls, while natural slopes are used for the remaining fill.

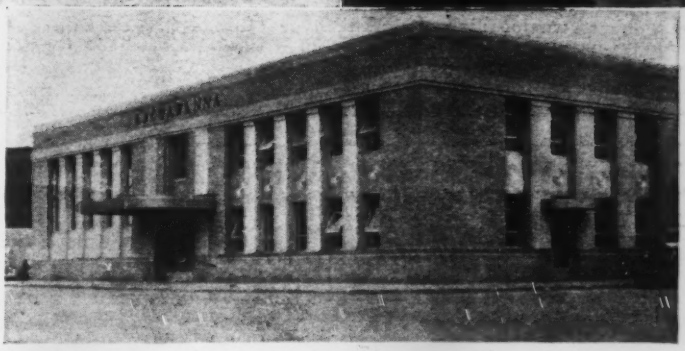
All bridges are of through or deck girder design with reinforced-concrete piers and abutments employed. Construction of a new passenger station was necessary.

For the Syracuse Grade Crossing Commission, which was set up to do the work, Nelson F. Pitts, city engineer of Syracuse, was chief engineer and Charles S. Slack, assistant engineer. The Elmhurst Contracting Co., Corona, N. Y., with George Hockensmith project engineer during early stages of the work and Charles Malis for the remaining time, held the general contract, exeepting for the new passenger station, which was built by the Irish Construction Co., Syracuse. For the Lackawanna Railroad G. A. Phillips is chief engineer, John Vogel bridge engineer and A. F. Reiland assistant bridge engineer.

Fred B. O'Connor, architect, prepared plans for the new station.



Where streets parallel the railway the bridge abutments are set back, as shown above, to provide better views for the cross traffic. Note how railroad tracks at far end of bridge are carried between reinforced-concrete retaining walls.



In many places open-face concrete cribbing is used for retaining walls, as illustrated above.

New $136,000, two-story, 48x-96-ft. passenger station at the left has steel frame, brick and Indiana limestone walls, and aluminum trim throughout.

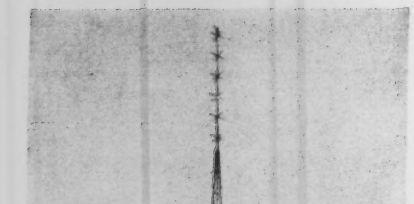


Photo by International-Stacey Corp.

A 3-leg radio tower

Something unusual, if not entirely new, is this radio tower rising 300 ft. above the roof of a broadcasting station. The tower is triangular in section with every point braced in a rigid frame. It is designed to support a 10-bay turnstile on the top to be used for frequency modulation broadcasting, and is designed to withstand heavy windstorms ranging up to cyclone proportions with the tower covered by ice. The installation is at Evansville, Ind.

Ohio completes 5-year survey of highway needs

A five-year survey of Ohio highways has been completed by D. F. Pancoast, chief engineer of the Ohio highway planning survey. The report indicates that at least $752,700,000, including $49,000,000 for new bridges, would be required to bring the state system up to required standards. The survey summarizes the status of 82,488 miles of state, county and township roads.

If the highway system is to keep pace with motorists' demands, "the revenue for the system must be augmented, either by increased taxation or by restoring to the state system revenues now diverted to other purposes," states Mr. Pancoast. According to the report the state highway system of 16,299 miles comprised 20 percent of the state's total road mileage, but carried 77 percent of the traffic, while 40,519 miles of township roads constituted 49 percent of the total mileage and carried only 8 percent of the traffic.

Mr. Pancoast recommends that consideration be given to placing responsibility for the upkeep of roads whose daily traffic average is less than 50 vehicles upon adjacent property owners, thus releasing the funds now being applied to the upkeep of such roads for major highways. This type of road is described as little more than a privately used lane, costing about $60 per mile a year for maintenance.

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U. S. Engineers take over road work at Denison Dam

The U. S. Engineers have set up a special office on the Oklahoma side of the Denison Dam project on the Red River to handle relocation of roads, bridges and railroads, according to announcement by Col. W. W. Wanamaker, district engineer in charge.

Oklahoma has approved an agreement for settlement of the controversy over relocation of roads and bridges, which has been going on since the government took over the project recently. The agreement has been submitted to Secretary of War Stimson for approval.

Col. Wanamaker states that Purdy Dam, a project to protect Pauls Valley from recurring floods would be expedited. In view of the seriousness of the flood situation on the Washita River and Rush Creek, it was hardly likely that the defense program would interfere in any way with the completion of this project.

JOBS OF THE WEEK

TURBO SUPERCHARGER PLANT, Fort Wayne, Ind.

Stone & Webster Engineering Corp., Boston, Mass., has received a contract from the General Electric Co., Schenectady, N. Y. for the construction of a plant to manufacture turbo superchargers and geared impellers for military aircraft. Cost of construction is estimated at $8,000,000. Total cost with machinery and equipment will be $25,011,838. Defense Plant Corp. will finance.

COPPER PLANT, Miami, Ariz.

W. A. Bechtel Co., of San Francisco, Calif., will construct a copper plant for Castle Dome Copper Co., subsidiary of Miami Copper Co., New York. Estimated cost is $9,000,000. Defense Plant Corp. will finance.

OFFICE BUILDING, Washington, D. C.

George A. Fuller Co., Washington, D. C., has been awarded a contract by Public Buildings Administration, Washington, D. C., to construct temporary federal office buildings T and U. Estimated cost is $1,658,000 on cost plus-fixed-fee basis.

ROADS, Indiana

Indiana State Highway Commission, Indianapolis received lowest bid from Bontrager Construction Co., Elkhart, Ind., for constructing 5.364 mi. of reinforced concrete paving on State Road 2, St. Joseph Co., at $599,802; and bid from Thomas McQueen Co., Forest Park, Ill., for 6.723 mi. on State Road 30, Porter and LaPorte Counties, at $611,386.

HOUSING, Dover, N. J.

Daniel J. Cronin Inc., Newark, N. J., has been awarded a contract to erect three hundred frame defense houses by Public Buildings Administration, Washington, D. C. Estimated cost is $1,081,333.

FLYING FIELD, Waco, Tex.

J. W. Bateson of Dallas, Tex., has been awarded contract for constructing basic flying school, including cantonment with buildings, facilities, roads, drainage, railroad, fencing and other work, by U. S. Engineers, Galveston. Estimated cost is $1,856,580.

BRIDGE, Maryland and Virginia

Harris Structural Steel Co. of New York, N. Y., was lowest bidder for erecting superstructure of the 2,350-ft. bridge over the Potomac River, between Sandy Hook, Washington Co., Md., and Loudon Co., Va., at $735,000. State Roads Commission, Baltimore, Md., took bids.

HOUSING PROJECT, Los Angeles, Calif.

Baruch Corp., Los Angeles, Calif., was lowest bidder for constructing the 449 unit William Mead Homes Project, at $1,329,055. Housing Authority of Los Angeles, opened bids Dec. 16. Housing Associates, Los Angeles, are architects. H. A. Barnett, Pasadena, is engineer.

REPAIR SHOP FOR AIR CORPS, Hill Field, Utah

Robert E. McKee, Los Angeles, Calif., will construct air corps airplane repair shop at Hill Field, Ogden, Utah, for U. S. Engineers, Los Angeles. Estimated cost is $1,029,700.

NOTE—Additional bidding and contract news on over 800 projects large and small appear in the Construction News sections beginning on page 15.

PRIORITIES GUIDEPOST

Current notes on what, who and how

CONSTRUCTION, it now appears, is not going to be **explicitly** given the benefit of a priority rating for its repair and maintenance needs. OPM has for some time been studying the possibility of modifying the repair and maintenance order to make it cover construction; priority officials intended some weeks ago to do this. Last week however a modification of the order was issued still limited to enterprises engaged in "manufacturing, processing or fabricating," plus a number of other types. Nevertheless, a good many general contractors have taken the position that their work is processing or fabricating and have made use of the A-10 maintenance and repair rating. OPM has not objected to this practice. The rating covers materials for repair and maintenance and maintenance and operating supplies such as lubricants. To use it, it is only necessary to attach to an order for such goods a signed statement as follows: "Material for maintenance, repair, or operating supplies—rating A-10 under Preference Rating Order P-100, with the terms of which I am familiar."

THE HIGH RATING OF A-2 has been assigned to all orders for chlorine to be used in the treatment of domestic water and sewage; a rating of A-10 may be used for chlorine for treatment of industrial water. All orders for chlorine must now be placed by the 10th of the month preceding delivery date if they are placed with a producer of chlorine or the 5th of the month if they are placed with a distributor. All orders must be accompanied by a form, PD-190, in duplicate. Each month producers and distributors have to have OPM approval of their delivery schedules before making delivery. After February, a complete system of allocation will be adopted for chlorine; OPM, using the information collected on the PD-190 forms, will decide how much is to be alloted to each consumer.

MANILA CORDAGE may not be sold to construction firms except on a rating of A-1-j or higher under an amendment to Preference Rating Order M-36.

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Damage by Army to roads placed at $125,000 by N. C.

A tentative estimate by W. Vance Baise, chief highway engineer for the North Carolina Highway and Public Works Commission, has placed damage to the state's highways by recent Army maneuvers at $125,000. Final estimate of the damage has not yet been made, including a report of damages to highways in the neighborhood of Carolina Beach caused by the moving of heavy guns between Camp Davis and Fort Fisher.

When completed the estimate will be sent to the War Department in the form of a claim and later will be placed before the Public Works Administration.

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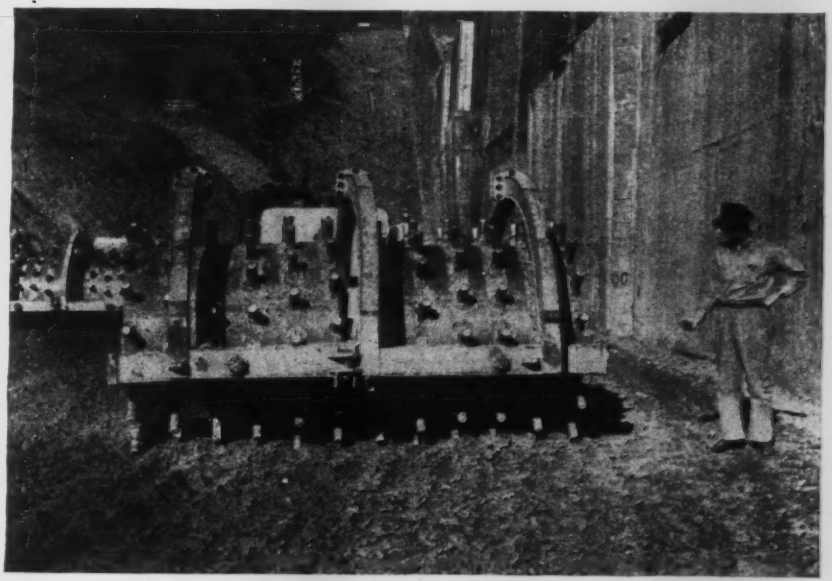
New Beaver-Mahoning waterway protested

The proposed $70,000,000 Beaver-Mahoning waterway which will connect the industrial area of Pittsburgh, Pa., with that of Youngstown, Ohio, by means of a waterway from near Rochester, Pa., to Struthers, Ohio, has been protested by the West Virginia Chamber of Commerce. This organization has sent its protest to President Roosevelt, Army engineers and members of Congress, and to the Upper Ohio Valley Association at Pittsburgh; the protest being based on the contention that the construction of the waterway would adversely affect West Virginia industries in that area.

Belt-line defense road planned for Indianapolis

Plans for a 60-mile, belt-line highway around the city of Indianapolis, Ind., have been approved by the Indiana State Highway Commission. The highway will greatly facilitate the movement of troops to and from Fort Harrison without moving them through the city proper, as well as facilitating ordinary traffic movement, according to S. C. Hadden, chairman of the commission. The road will have an estimated cost of $4,000,000.

Because of the military advantage of such a road, the Federal Public Roads Administration and the War Department have been requested to include the project in the military strategic network of roads. The Indianapolis office of PRA has endorsed the plan and the project is now being given consideration in Washington. If the highway is approved as a defense project then the federal government will finance 75 percent of the cost. Regardless of federal action, however, the highway will be constructed by the state, with completion contemplated within 3 years.



Heavy articulated roller on Merriman Dam fill

Specifications for rolled fill on the Merriman Dam, which will store water for New York City's new Delaware Water Supply system, required rolling to unusual densities and indicated the need for using especially heavy equipment. Compacting is done with two rollers in tandem drawn by tractor as shown above.

Detailed information on the rollers used is as follows: Diameter of drum, 60 in.; length of drum, 60 in.; capacity of drum, 590 gal.; weight of drum per linear ft., (empty) 2,100 lb.; tamping feet per drum, 102; area of tamping foot, 6 sq.in.; one tamping foot to every 110 sq.in. of drum surface; total weight of unit (empty), 21,040 lb.; unit pressure on tamping feet (4 feet per drum in contact with ground), empty 438 lb. per sq.in., filled with water 642 lb. per sq.in.

The rollers were built by the Southwest Welding & Manufacturing Co., Alhambra, Calif., for George M. Brewster & Son, Inc., Bogota, N. J., subcontractor on rolled-fill at Merriman Dam and contractor for preliminary work at Neversink Dam.

The core trench along the concrete cut-off wall at Merriman Dam has been partially filled with compacted earth but major earth moving operations are being held over until next season. Both Merriman and Neversink Dams, and the entire Delaware Water Supply system, are being built for the Board of Water Supply of New York City.

OBITUARY

HALLECK W. SEAMAN, 81, civil engineer, died Dec. 14 at Clinton, Iowa. Mr. Seaman for many years was affiliated with the Inland Waterways Corp. and was at one time president of the American Mining Congress for two terms. He was also identified with the railway industry, having served as engineer on the westward extension of the Chicago & Northwestern Railway and the Chicago, Milwaukee & St. Paul Railroads.

WILLIAM R. CRITTENDEN, 67, for 30 years bridge supervisor and builder for the Southern Railroad, and more recently with TVA, died recently at Tuscumbia, Ala.

GUY R. CAMPBELL, 61, assistant engineer of Palo Alto County, Iowa, died Dec. 13 at Emmetsburg, Iowa.

JOHN J. TEVEPAUGH, 53, water and streets superintendent of North Wilkesboro, N. C., died Dec. 9.

OLIN P. THOMAS, 59, civil and mining engineer, died Dec. 16 in Johnstown, Pa. At the time of his death he was engineer for the boroughs of Cassandra, East Conemaugh and Portage, Pa.

DANIEL B. NORTON, 72, a member of the firm of Norton Brothers, earth moving contractors at Kansas City, Mo., died recently in that city.

JOSEPH P. SEVERINO, prominent Harrisburgh, Pa. contractor, died at Harrisburg Dec. 14.

J. ELIE BLANCHARD, director of the Department of Public Works, Montreal, Canada, since 1930, died recently in his 63rd year. Mr. Blanchard was a graduate engineer from the Ecole Polytechnique in 1902. He built the waterworks system of St. Boniface, Man.

HOMER KNAPP, 83, prominent building contractor of Rochester, N. Y., died recently in that city.

ALFRED NELSON, 73, building contractor, died Dec. 15 at Salt Lake City, Utah.

FRANK PAYNE, 80, veteran building contractor of Harrisburg, Pa., died recently in that city.

JOHN BENTON HOBBS, superintendent of construction for E. T. Hutchings, architect, died at Louisville, Ky. recently. Mr. Hobbs was formerly connected with the Gulf, Mobile & Northern Railroad as a construction engineer.

WEBSTER P. BUSHNELL, civil engineer, died Dec. 8 at Quincy, Ill. Mr. Bushnell received his civil engineering education at DePauw University and was a pioneer in the field of drainage and levee work, first in Indiana and later in Illinois and Missouri. He served two terms as city engineer of Quincy. Prior to his retirement about five years ago he was senior member of the firm of Bushnell & Bushnell, consulting engineers, specializing in drainage and flood control work along the Upper Mississippi River and its tributaries.

HERMAN LEE MCMANUS, 36, in charge of the pumping station of the High Point, N. C. city water department for several years, died Dec. 18.

MURRAY SULLIVAN, 60, civil engineer, died Dec. 14 at Salt Lake City, Utah.

SAMUEL D. DODGE, 71, retired civil engineer, died Dec. 11 at Suffern, N. Y.

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Location of engineers and equipment being recorded

As an emergency measure, the Western Pennsylvania Constructors Association, with headquarters in the Columbia Building at Pittsburgh, Pa., is recording the location of all engineers, heavy construction equipment and other manpower to deal with damage by sabotage, attack or accident to bridges, highways, railways, dams or industrial plants in 33 counties of western Pennsylvania. This work is being carried out under the supervision of Roy A. MacGregor, secretary, of the Constructors Association.

CONTRACTS AND CAPITAL

ENGINEERING CONSTRUCTION awards for the short week due to the Christmas holiday total $50,170,000, a decrease of 33 percent from the volume reported for the corresponding 1940 week.

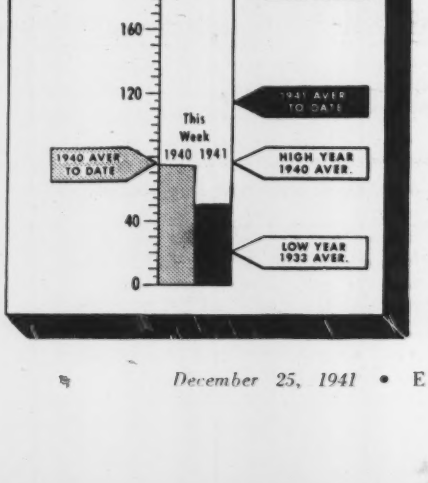
Private construction is 67 percent lower than a year ago, and public awards are 23 percent under last year.

The week's total brings 1941 construction to $5,868,699,000, an increase of 47 percent over the 1940 total. Private awards, $1,178,082,000, are 1½ percent higher, and public construction is up 66 percent compared with last year as a result of the 141 percent gain in federal work.

In the classified construction groups, gains over last week are in industrial and commercial buildings, and unclassified construction. Public building is the only class of work to top the 1940-week volume.

New capital for construction purposes for the week totals $1,570,404,000. This compares with $10,902,000 for the 1940 week. The current week's financing is made up of $1,563,250,000 in federal appropriations for construction in the Third Supplemental Defense Appropriation Act, $6,246,000 in state and municipal bond sales, and $908,000 in corporate security issues.

New construction financing for the year totals $7,895,129,000, a gain of 103 percent over the $3,894,743,000 reported for 1940.



CONTRACTS

(Thousands of dollars)

	Week Ending Dec. 26 1940	Dec. 18 1941	Dec. 25 1941
Federal	$38,307	$43,497	$35,018
State & Municipal	18,985	17,311	9,169
Total public	$57,292	$60,808	$44,187
Total private	18,049	6,158	5,983
TOTALS	$75,341	$66,966	$50,170
Cumulative 1941 (52 weeks)			$5,868,699
1940 (52 weeks)			$3,987,243

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1940 52 weeks	1941 52 weeks
NON-FEDERAL	$1,612,782	$1,380,761
Corp. Securities	390,212	358,817
State & Mun.	581,918	439,293
U.S.H.A. loans	218,704	30,339
R.F.C. loans	197,948	288,842
R.E.A. loans	40,000	100,500
Federal Aid—Hwy.	184,000	163,000
FEDERAL	$2,281,961	$6,514,368
TOTAL CAPITAL	$3,894,743	$7,895,129

ENR INDEX NUMBERS

		1913	1928
Index Base = 100			
Construction Cost	Dec. '41	266.16	127.94
Building Cost	Dec. '41	216.37	116.96
Volume	Nov. '41	282	124

CONSTRUCTION REPORTS

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, Manager *SCOTT McLEOD, Statistician*
(Daily service also available—Write for details)

Location of ENR Correspondents

Symbols and Abbreviations Include:

Federal Government
Project of $500,000 or over
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

Classes of Construction

(Named in order of Listing)

Water Supply — Unclassified
Sewers, Waste Disposal — Latin America
Bridges, Grade Cross'gs — Public Buildings
Streets & Roads — Commercial Buildings
Earthwork, Waterways — Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads):

BIDS ASKED (new announcements only. For fullcalendar, see also preceding issues of ENR)*:

LOW BIDDERS: All low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

WATER WORKS

PROPOSED WORK

★**†Ala., Mobile**—City, imprv. WW and sewerage sys. Docket Ala. 1-185. $1,407,159. **DPW.** CD 9/3—ENR 9/11.

★**Ill., Chicago**—O. E. Hewitt, comr. P. Wks. Dpt., City Hall, rejected bids Oct. 20, tunnel connections to southwest land tunnel sys., South Dist. filtration plant, vicinity 79 st. and Lake Michigan. Will probably readvertise. CD 10/22—ENR 10/30 under LB.

Mass., Springfield—E. Lockridge, ch. engr. Bd. Water Comrs., City Hall, 40,000 lin. ft. 30 in. steel pipe from West Parish filters, Mundale to Provin Mt. Reservoir. Over $200,000.

†Mich., Battle Creek—City, water supply main, 2 high lift pumps, elevated storage tank, Docket Mich. 20-133. $82,400. **DPW.**

★**Neb., Omaha**—Metropolitan Utilities Dist., W. S. Byrne, genl. mgr., modernization, rehabilitation, Water Dpt. plant and distr. sys. $2,200,000. J. P. Detweiler, engr. Water Dpt.

Neb., Tecumseh—W. J. Devenney, city clk., preliminary plans, WW imprvs. $35,000. Henningson Eng. Co., Standard Oil Bldg., Omaha. engr.

O., Cleveland—Cleaning, concrete relining 1 mi. 36 in. steel watermain, Lake Ave. G. H. Hamlin, 104 City Hall, engr.

O., Sawyerwood—Village, WW sys. $34,081. Applied for DPW gr. A. F. Ranney, c/o Summit Co. Office, Akron, engr.

Pa., Bethlehem—B. Nagle, city clk., WW. exten. pump. station, collection and storage water. $18,500. R. Fox, city engr. CD 12/16—ENR 12/18.

Pa., Du Bois—Sandy Twp. Municipal Auth., Sandy Twp., DuBois, water supply and distr. sys. $25,000.

★**†Tex., El Paso**—City, water supply and treatment plant sys., etc., Docket Tex. 41-125. $754,900. **DPW.** CD 7/28—ENR 7/31.

★**†Tex., Pasadena**—City, water supply sys. addns., distr. extens., sewerage sys addns., treatment plant, Docket Tex. 41-246, $532,700. **DPW.** CD 8/13.

†Tex., Pelly—City, water supply sys. addns., extens., well, pump. facilities, distr. lines, sewage treatment plant addn., Docket 41-216. $125,975. **DPW.** Garrett Eng. Co., 3504 Audubon St., Houston, engrs. CD 9/25—ENR 10/2.

†Wash., Ilwaco—Town, water filtration plant, Docket Wash. 45-117. $20,000. **DPW.**

BIDS ASKED

Bids Asked January 6

Wash., Pasco—Furnishing 2 centrifugal pumps. G. D. Hall, Larson Bldg., Yakima, engr.

Bids Asked January 8

Ga., Macon—Bd. Water Comrs., c/o J. Mitchell, chn., 3 m.g. rein.-con. clear water basin, c.i. supply main, etc. Wiedeman & Singleton, Candler Bldg., Atlanta, engrs.

N. Y., Colonie (br. Albany)—Latham Water Dist., Colonie, at Town Hall, Newtonville, wells, pump. stations, piping, etc. Solomon & Keis, 257 Bway., Troy, consult. engrs.

Bids Asked January 20

†Vt., Portsmouth—Office M. E. Haug, city mgr., prop. A, 1 mg and 200,000 gal. elevated steel tanks; Prop. B, pumps, motors, generators, gasoline engines and controls; Prop. C, addns. distr. sys.; Prop. D, cleaning mains; adv. ENR 12/25. CD 9/8—ENR 9/11.

Bids Asked

†Calif., Fort Ord—U. S., Eng., Constr. Div., Fort Ord, additional water supply lines, fire hydrants, utilities, etc., Fort Ord, Inv. Q.M. 629-42-103-U.

LOW BIDDERS

†Mass., Watertown—U. S. Eng., Army Base, Boston, Dec. 12, 16-in. watermain North Beacon and Louise Sts., from Edward M. Matz, Inc., 25 Huntington Ave., Boston, **$14,800.** CD 12/11.

CONTRACTS AWARDED

★**N. Y., Buffalo**—Western New York Water Co., H. S. Dewey, vice pres., 11 Niagara St., WW exten., own forces. **$500,000.** CD 11/3—ENR 11/6.

Pa., Emmaus—Boro Council, water supply mains, from boro limits, to Park sect., own forces. **$15,000.** CD 11/18—ENR 11/27.

†C. Z., Quarry Heights—U. S. Eng., steel water storage tank, to Chicago Bridge & Iron Co., 165 Bway., New York, N. Y. **$57,095.**

†T. H., Oahu—Con. Q.M., water sys., Camp Ulupau, to John F. Nichols, 2122 N. King St., Honolulu, **$21,364.**

SEWERS—WASTE DISPOSAL

PROPOSED WORK

Ark., Mena—Imprvt. Dist. 9, storm sewers. $65,195. Seeking WPA aid.

Calif., San Mateo — Storm and sanitary sewers, sewage pump. station, equip., Laurel Gardens, Laurel Hills and Laurel Square Subdivision. Over $25,000.

†Conn., Bridgeport — City, outlet sewer, pump. station, Docket Conn. 6-107. $35,000. **DPW.**

Conn., Greenwich—W. M. Peck, town, first selectman, Town Hall, preliminary plans storm and sanitary sewers, imprvs., Mason St. sewage plant and Cos Cob plant. Over $25,000.

†Ga., Savannah—Mayor and Bd. Aldermen, exten. sewerage sys., sanitary and storm water trunk lines, addn., etc., Dockets Ga. 9-102 and Ga. 9-901. $162,500 and $15,000 respectively. **DPW.** CD 11/24—ENR 11/27.

Ill., Chicago—Cook Co., County Bldg., 11,870 ft. 15- to 48-in. storm sewer, St. A Rt. 23 (E. River Rd.) and Central Rd. $102,000. G. H. Baker, Centennial Bldg., Springfield, state engr. co. roads and city streets.

†Ind., Knox — Town, exten. sewer outlet, pump. station with force mains, etc., Docket Ind. 12-118. $45,000. **DPW.**

★**†Mich., Pontiac**—Oakland Co., Southern Oakland Co., sewage disposal project, Docket 20-167. $812,000. **DPW.** Hubbell, Roth & Clark, Inc., Buhl Bldg., Detroit, engrs. CD 11/7—ENR 11/13.

★**N. J., Gloucester City**—Sewage disposal sys. $500,000.

★**N. Y., Brooklyn**—Dpt. P. Wks., Municipal Bldg., 1 story, 115x281 ft. sewage treatment bldg. (pump, blower house) 1133-45 Miller Ave. $1,000,000. Albert & Bauer, c/o owner, archts.

O., Sawyerwood — Village, sewerage sys. $31,687. Applied for DPW gr. A. F. Ranney, c/o Summit Co. Office, Akron, engr.

Pa., DuBois—1,500 ft. exten. trunk line sanitary sewer to city-Sandy Twp. line. $25,000.

Pa., Johnstown—Storm and sanitary sewerage sys. Prospect Housing area, etc. Over $50,000. H. L. Wilson, city engr.

Pa., Roscoe—Boro Council, approved bond issue, sanitary sewerage sys. $30,000. Boro Eng. Dept., c/o owner, engr.

†Tenn., Alcoa — City, sewage treatment plant, Docket Tenn. 40-174. $59,500. **DPW.** CD 2/13—ENR 2/20.

†Tex., Galena Park — City, sanitary sewerage sys. addns., extens., enlarging sewage treatment plant, etc., Docket Tex. 41-331. $69,500. **DPW.** CD 10/16—ENR 10/23.

★**Utah, Provo**—E. A. Jacob, city engr., sewage disposal plant. $500,000. Will apply to DPW.

Wash., Davenport—D. C. McNeal, mayor, City Hall, sewage disposal plant. $25,000. W. L. Malony, Symons Bldg., Spokane, engr.

BIDS ASKED

Bids Asked December 30

†N. J., Wrightstown—W. J. Finley, regional dir. FWA, Defense Pub. Wks. Div., Broad St. Trust Bldg., Broad and Stiles Sts., Phila., Pa., sewers, sewage treatment works, N. J. 28-117. **DPW.** CD 10/6—ENR 10/9.

Bids Asked January 5

†La., De Ridder—City, sanitary sewer and water sys. serving airport of 22nd Observation Squadron, Docket La. 16-102. **DPW.** A. F. Rideout, City Hall Bldg., engr. CD 11/11—ENR 11/13.

LOW BIDDERS

†Calif., Fairfield—Supervs. Solano Co., Dec. 12, sewage pump. plant, odor control plant, near Vallejo, Docket Calif. 4-162, from R. B. McNair, 3745 Rhoda St., Oakland. **$33,163. DPW.** CD 12/5.

Calif., Niles—C. H. Purcell, engr. State Hy. Dpt., Sacramento, Dec. 10, storm drain across State Route 5 and through Niles, from McGuire & Hester, 796 66 Ave., Oakland. **$29,129.** CD 11/24—ENR 11/27.

†Tex., Velasco—City, E. F. Roeller, mayor, Dec. 15, WW sys. addns., sanitary sewerage sys., disposal plant, pump stations, from Wilson & Seward, Plano. **$120,917.** Est. $120,000. CD 12/1—ENR 12/4.

CONTRACTS AWARDED

Calif., Salinas — Directors Alisal Sanitary Dist., 627 E. Alisal St., rein.-con. outfall sewer, etc., to McGuire & Hester, 796 66 Ave., Oakland. **$74,447.** Bids 12/9. CD 11/25—ENR 11/27.

†Ga., Fort Benning—U. S. Eng., Fort Benning, sewage treatment facilities addition, to G. S. Bartholomew, 311 Constr. Bldg., Dallas, Tex., **$235,000. (Correction**—contractors address.) CD 12/9—ENR 12/11, under CA.

†Ill., Proving Ground—U. S. Eng., Savanna Ordnance Depot, intercepting sewers, sewage treatment plant, to Central Contg. Co., Oshkosh, Wis. **$89,400.** CD 12/10—ENR 12/18.

N. J., Newark—Sewer Pioneer St. **WPA. $58,032.** J. Costello, city engr.

N. Y., Amherst (mail Williamsville)—Sewers. **WPA. $100,000.**

N. Y., Cairo—Drainage pipe, crib walls. **WPA. $50,000.**

N. Y., East Rochester—Sewers, curbs, etc., own forces. **$35,000.**

N. Y., Oswego—Imprv. sewers. **WPA. $50,000.**

N. Y., Rochester—Relief sewer, Clarissa St. **WPA. $100,000.**

Tex., Teneha—D .McNeill, mayor, sanitary sewerage sys., **WPA. $52,500.** Bids 11/15. CD 10/28—ENR 10/30.

Utah, Layton—V. Cook, city clk., sewerage sys. **DPW. $168,000.**

BRIDGES, GRADE CROSSINGS

PROPOSED WORK

†California—Bureau Reclamation, Customhouse, Denver, Colo., cancelled bids to have

BRIDGES, etc. (Proposed Work, Cont'd.)

been opened Dec. 17, structural steel for highway bridge, Central Valley Project, Spec. 1596-D. CD 12/1—ENR 12/4.

Conn., Glenville—Town of Greenwich, W. M. Peck, first selectman, Town Hall, Greenwich, preliminary plans rein.-con. bridge over Byram River. Over $25,000.

Illinois—State Dpt. P. Wks. & Bldgs., Div. Hys., Springfield, one 42 ft. span rein.-con. deck girder bridge, two 45 ft. and one 58 ft., steel I-beam bridge, two 77 ft. and one 100 ft. steel I-beam bridge, SB I Rt. 13, Sect. 5B2, Jackson Co.; four 30 ft., four 37 ft. concrete slab span bridge, one 175 ft. steel truss bridge, concrete approaches, 50 ft. concrete girder approach span on each end, ten 40 ft. span, ten 51 ft. span bridge, all over Little Wabash River and overflow channels, FA Rt. 160, Sect. 107B, Clay Co.; two 45 ft. and one 58 ft. I-beam bridge over Mud Creek, one 94 ft. steel truss span, four 49 ft. I-beam bridge over Big Muddy River, Rt. 13, Sect. 12B1, Jackson Co.; six 63 ft., three 82 ft. I-beam span bridge, 200 ft. steel truss span bridge over Kaskaskia River, two 65 ft. and three 68 ft. I-beam span bridge, two 35 ft. and one 45 ft. I-beam span bridge, two 35 ft. and one 45 ft. span bridge, all over overflow Kaskaskia River, SB 9 Rt. 150, Sect. 421B, St. Clair Co.; two 52 ft. and one 67 ft. I-beam span bridge, two 10 ft. span box culvert, one span 26 ft. concrete deck girder span bridge, FA Rt. 36, Sect. 43B, Pike Co.; one 125 ft. steel truss span, two 30 ft., one 37 ft. and one 38 ft. I-beam span bridge over Skillet Fork, St. A Rt. 16, Sect. 101B, Marion Co. M. J. Fleming, Centennial Bldg., Springfield, asst. ch. state hy. engr.

Ill., Chicago—Pedestrian concrete subway, approaches, drainage structures, subway lighting, Hiawatha Ave. over Chicago, Milwaukee, St. Paul & Pacific R.R. tracks from Lehigh to Kinzua Aves. $40,000. G. M. Baker, Centennial Bldg., Springfield, state engr. co. roads and city streets.

Ill., South Holland—Cook Co., County Bldg., Chicago, rein.-con. girder bridge, approaches over Little Calumet River, Chicago Rd. $100,000. G. H. Baker, Centennial Bldg., Springfield, state engr. co. roads and city streets.

★**Michigan**—State Hy. Dpt., Lansing, rejected bids Sept. 24, bridge, Charlevoix Co. CD 9/30—ENR 10/2 under LB.

Missouri—State Hy. Comn., Jefferson City, two 8 ft. rein.-con. slab spans, culvert type over stream, Mansfield-Mountain Grove Rd., Route 60, Sect. 40 A, two 10 ft. rein.-con. slab spans, culvert type, same road, Wright Co. C. W. Brown, Jefferson City, engr.

★**N. Y., New York**—President Bronx Boro, 851 Grand Concourse, grade separation, Mosholu Parkway and Van Courtlandt Ave. $500,000.

Oklahoma—State Hy. Dpt., Oklahoma City, underpass under Santa Fe R. R., U. S. 77, near Marietta, Love Co. $34,000. V. T. Moon, Oklahoma City, engr.

S. D., Mitchell—Overhead viaduct over Milwaukee R.R. tracks. $25,000.

Texas—State Hy. Comn., B. P. Gentry, chn., Austin, bids soon, Gulf, Colorado & Santa Fe R.R. underpass, approaches, 0.557 mi. U. S. Hy. 377, Hood Co.; Texas & New Orleans R.R. overpass, approaches, 3 mi. U. S. Hy. 87, DeWitt Co.; Texas & Pacific R.R. overpass, 0.076 mi. U. S. Hy. 80, Nolan Co.; drainage structure 0.123 mi. U. S. 90, Fort Bend Co.; rein.-con. bridge over Mud Creek, 0.34 mi. Hy. 110, Cherokee Co.

Wash., Seattle—King Co., County-City Bldg., raidroad overcrossing on connection from Airport Way exten. to State Road 2, south of here, $75,000; decking with steel grating 14 Ave. S. bridge, south of here, $35,000. J. R. Heath, County-City Bldg., engr.

Que., La Croche (P. O. La Tuque)—Municipality of Langelier, La Croche, c/o E. Bergeron, clk., reconstructing Bridge Bordeleau $30,000. Dpt. P. Wks., Quebec City, engr.

Que., St. Justin—J. E. Langlois, municipality clk., concrete, steel bridge. $30,000. Dpt. P. Wks., Quebec City, engr.

BIDS ASKED

Bids Asked December 30

Connecticut—W. J. Cox, comr. state Hy. Dpt., Hartford, twin rein.-con. rigid frame hy. bridge over Merritt Parkway, 300 ft. rolled bank run gravel approaches, Trumbull.

Bids Asked January 5

La., Houma—Police Jury Terrebonne Parish Houma, placing piling for completion apd erection bridge on Bayou Terrebone, at intersection Bourg-Larose Hy.

Bids Asked January 7

†**Virginia**—Pub. Roads Admin., Winder Bldg., 17 and F Sts. N.W., Wash., D. C., Bridge 4, War Dpt. Bldg., road network, Arlington Co.; adv. ENR 12/25.

LOW BIDDERS

★**Indiana**—State Hy. Comn., Indianapolis, Dec. 16, Bridge Contr. 2272, Washington Co., from Allen & Wilson, Vincennes, **$43,933** est. $52,082***Bridge Contr. 2266, Hancock Co., and Bridge Contr. 2270, Boone Co., from R. L. Schutt, 215 E. New York St., Indianapolis, **$66,955** and **$146,939** respectively, est. $75,450 and $168,735 respectively *** Bridge Contr. 2269, Boone Co., from Sweet Bros. & Co., Woodburn, **$57,033** est. $65,312***Bridge Contr. 2268, Boone Co., and Bridge Contr. 2267, Hancock Co., from Mulzer Constr. Co., Martinsville, **$40,257** and **$41,781** respectively, est. $48,579 and $51,428 respectively***Bridge Contr. 2265, Porter and La Porte Counties, from Stuntz-Yoeman Co. Inc., Frankfort, **$58,672** est. $67,050***Bridge Contr. 2237, Warrick Co., from R. P. Olinger, Huntingburg, **$51,779** est. $53,707***Bridge Contr. 2231, Randolph Co., from J. R. Gates, 1226 Elmwood Ave., Fort Wayne, **$30,945** est. $34,336. Rejected bids Bridge Contr. 2264, Kosciusko Co., will readvertise. CD 12/2—ENR 12/4.

Iowa—State Hy. Comn., Ames, Dec. 16, 195x42 ft. continuous I-beam bridge, rein.-con. retaining wall, FA 22B(1), Linn Co., from A. Melberg, 316 19 St. S.E., Cedar Rapids. **$53,616.** CD 12/5—ENR 12/11.

★**Maryland** and **Virginia** — State Roads Comn., Baltimore, Md., L. H. Steuart, secy., Dec. 16, superstructure for 2,350 ft. bridge over Potomac River between Sandy Hook, Washington Co., Md., and Loudon Co., Va., from Harris Structural Steel Co., 419 4 Ave., New York, N. Y. **$735,000.** CD 12/1—ENR 12/4.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Dec. 16, reconstructing expansion bearings Bronx Approach Macombs Dam Bridge, from Peerless Constr. Co., 280 Madison Ave., **$41,000.** CD 12/8—ENR 12/11.

STREETS AND ROADS

BIDS ASKED

Bids Asked December 30

Connecticut—W. J. Cox, Comr. State Hy. Dpt., Hartford, bituminous macadam paving 733 ft. Route 126, Falls Village, Cannan, underground high tension cable, sect. Hartford By-Pass, Hartford, removing old railroad abutments, resetting flag walk, Route 49, Norfolk; traffic bound gravel surface treating 514 ft. intersection Rt. 44, and Taconic Rd., Salisbury; rein.-con. paving 5,500 ft. Rt. 65, Shelton-Nichols Rd., Trumbull; traffic bound gravel surfacing 8,259 ft. Waterman Rd., Lebanon; 7,779 ft. Coburn, Blantin, Parker and Hollow Rds., Sherman; rein.-con. paving 7,249 ft. New London By-Pass, Waterford and New London.

Bids Asked January 7

Calif., San Francisco—S. J. Hester, secy. Dpt. P. Wks., City Hall, grading, asphaltic concrete on rock sub-base paving, sewers, culverts, Quintara St. J. J. Casey, city engr.

Bids Asked January 9

Tennessee—State Hy. Dpt., Nashville, base and furnishing (stockpiled) stone 5.5 mi. State Hy. 107, FAP 599-C, Washington Co.; 12.059 mi. Sect. State Hy. 52, S.A.P. 366-H, Fentress Co.; 13.19 mi. Sect. State Hy. 11. S.A.P. 368-C. Giles Co.; asphalt paving State Hy. 63, S.A.P. 359-D and 359-E, Scott and Campbell Counties; base 16.354 mi. Sect. State Hy. 85, S.A.P. 135-G, Jackson and Overton Counties; 18.608 mi. Hy. 100, S.A.P. 534-D, Henderson and Decatur Counties.

Bids Asked About April 1

N. Y., Lyons—Bd. Supervs. Wayne Co., bituminous materials paving 1.25 mi. Rose-Wolcott County Rd., Rose; 5.4 mi. Fairville-Maple Ridge-South Centenary county Rd., Sodus; 3.5 mi. Pultneyville-Lake Rd., Ontario, 1.65 mi. Dean-Ridge Chappel Connecting Rd., Williamson. $316,275. L. R. Barnes, co. supt.

Bids Asked

California—C. H. Purcell, engr. State Hy. Dpt., Sacramento, cancelled bids to have been opened Dec. 26, impr. 1.3 mi. Santa Clara Co. CD 12/9—ENR 12/11.

†**Calif., Inglewood**—U. S. Eng., 751 S. Figueroa St., Los Angeles, cancelled bids to have been opened Dec. 16, 6 in. concrete on gravel paving 48,000 sq. yd. Miners Field. CD 11/25—ENR 11/27.

LOW BIDDERS

Colorado—State Hy. Dpt., Denver, Dec. 16, pioneer tunnel bore with graded approaches, etc. 0.813 mi. Jefferson Co., from Pioneer Constr. & Eng. Co., Denham Bldg., Denver. **$122,534.** Est. $99,158. CD 12/9.

Ill., Woodstock—Town, Dec. 5, imprv. 1.245 mi. Sect. 8-CS, from E. M. Melahn, Constr. Co., Algonquin. **$25,420.** CD 12/2.

★**Indiana**—State Hy. Comn., Indianapolis, Dec. 16, imprv. 3.224 mi. Clinton and Carroll Counties, from N. E. Daugherty Co., Bloomington, **$81,809,** est. $104,354***3.154 mi. Putnam and Hendricks Counties, from M. A. Hinsey & Co., Waterloo, **$71,344,** est. $91,980***0.62 mi. Owen Co., from Mid-American Eng. Corp., 111 W. Monroe St., Chicago, Ill., **$58,065,** est. $63,316***3.446 mi. Washington Co., from R. P. Olinger, Huntingburg, **$134,521,** est. $194,908 ***2.157 mi. Contr. 2226, and 3.77 mi. Contr. 2250, Boone Co., from Putman & Greene, Inc., 206 Transfer St., Fort Wayne, **$210,439** and **$269,023** respectively*** est. $237,924 and $310,653 respectively***5.987 mi. Hancock Co., from R. Daoust, Defiance, O., **$314,061,** est. $361,166 ***4.578 mi. Marion Co., from Grace Constr. & Supply Co., 1915 Lincoln Bank Bldg., Fort Wayne, **$226,193,** est. $254,439***0.797 mi. Rd. 20 and 0.475 mi. Rd. 27, Steuben Co. from L. W. Dailey Constr. Co., 1034 Oakland St. Fort Wayne, **$97,451,** est. $106,809*** 5.195 mi. Kosciusko Co., from Gast Constr. Co., Warsaw, **$282,111,** est. $353,193***6.464 mi. Elkhart Co. and 8.008 mi. Lagrange Co., from Phend & Brown, Milford, **$96,329** and **$136,627** respectively, est. $121,101 and $169,044 respectively. CD 12/3—ENR 12/11.

★**Indiana**—State Hy. Comn., Indianapolis, Dec. 16, imprv. 5.364 mi. Joseph Co., from Bortrager Constr. Co., Indianhart, **$599,802.** Est. $650,722—6.722 mi. Porter and LaPorte counties, from Thomas McQueen Co., Forest Park, Ill., $714,306. CD 12/3—ENR 12/11.

Iowa—State Hy. Comn., Ames, Dec. 16, imprv. 0.265 mi. Linn Co., from A. Melberg, 316 19 St. S.E., Cedar Rapids, $58[illegible]; 5.845 mi. Cass Co., from F. I. Braden, Red[illegible]k, $29,906. CD 12/5—ENR 12/11.

†**Montana**—Pub. Roads Admin., Missoula, Dec. 10, imprv. 3.6 mi. Y-G-B[illegible]e Hy. adjacent Lewis & Clark Natl. F[illegible]st, Cascade Co., from T. Staunton, 422 5[illegible]N., Great Falls, **$114,428.** CD 12/2.

Virginia—State Hy. Dpt., Richmond, Dec. 16, imprv. 3 mi., Scott Co., from C. D. and C. P. Fugate, Wise, **$131,139;** 3 mi. hy. and bridge Spotsylvania Co., from W. W. Turk & Son, Virgilina, **$123,679.** CD 12/2—ENR 12/4.

CONTRACTS AWARDED

Arizona—State Hy. Comn., Phoenix, imprv. 4 mi. Pinal Co., to W. E. Orr, 30[illegible] W. Monte Vista Rd., Phoenix, **$245,317.** Bids 12/12, awarded 12/12. CD 12/2—ENR 12/4.

†**Calif. Monterey**—U. S. Eng., Fort Ord, primary and secondary paving, to Granite Constr. Co., Bin 9, Watsonville, $37,900. CD 12/9—ENR 12/11.

Kan., Topeka—Shawnee Co., road imprvs., **WPA. $94,971.** W. King, Topeka, co. engr.

Massachusetts — Commonwealth of Massachusetts, Dpt. P. Wks., H. L. MacDonald, comr., 100 Nashua St., Boston, bituminous road mix surfacing 13,850 sq. yd. hy., Taunton to A. L. Cedergren, 9 Sheppard Ave., Brockton. **$25,543.** Bids 12/2.

N. Y., Albany—Imprv. Washington Ave. **WPA. $75,000.**

N. Y., Albion—Hy. Dpt. Orleans Co., Albion, repairing, exten. imprv. co. hy. sys., own forces. **$74,940.**

N. Y., Blooming Grove—Widening, grading, paving roads. **WPA. $50,000.**

N. Y., Granville—Paving, widening, installing culverts, Tinker St. **WPA. $50,000.**

Pa., Ellwood City—Bituminous materials paving, own forces. **$35,000.**

Tex., Pampa—Gray Co., constructing, reconstructing, imprv. roads, **WPA. $84,940.**

Ont., Toronto—Province of Ontario, Toronto, graveling, Shebandowan Rd. and King's Hy. to M. L. Anderson, Fort William. Est. $30,000.

EARTHWORK AND WATERWAYS

PROPOSED WORK

Calif., Oakland—Oakland Port Comn., foot of Grove St., received no bids Dec. 15, for dredging 16,000 cu. yd. slips, Grove St. Terminal. CD 12/9.

†**Massachusetts**—U. S. Eng., Park Sq. Bldg., Boston, rejected bids Nov. 13, dredging Mystic River, Inv. 175-42-56. CD 11/18—ENR 11/27, under LB.

★†**Oklahoma**—U. S. Eng., Wright Bldg., Markhams Ferry Dam across Grand River near Locust Grove. $1,500,000.

★†**Oklahoma**—U. S. Eng., Wright Bldg., Tulsa, Fort Gibson Dam across Grand River near Fort Gibson. $2,335,000.

Pa., Johnstown—City Council, Johnstown, and Comrs. Cambria Co., Ebensburg, drainage sys., City-County Airport, Richland Twp., near here. Over $50,000. H. Lee Wilson, City Hall, Johnstown, city engr. in charge.

†**Pa., York**—Dpt. Agriculture, The Mall 13 to 14 Sts. S.W., Wash., D. C. extensive soil conservation and erosion project, Codorus Creek watershed, York Co.

South Dakota—Hamill Soil Conservation Dist., Hamill, water and soil conservation, flood prevention, Tripp Co.

★**S. D., Pierre**—State, dam, Missouri River, near here. $1,000,000.

BIDS ASKED

Bids Asked January 5

N. Y., New York—Dpt. Parks, Arsenal Bldg., Central Park, 64 St., 5 Ave., bulkhead, Battery Park. Contr. MB-3. CD 12/19.

Bids Asked January 6

La., Ville Platte—Bd. Bayou Petite Passe, Ville Platte, clearing, grubbing, excav., dredging canals. Latour & Goudeau, Ville Platte, engrs.

Bids Asked January 13

Louisiana—Bd. Comrs. Notleyville Gravity D.D. 21, St. Landry Parish, at office Miss Maysie B. Kerr, secy.-treas., Opelousas, gravity drainage sys., removal approx. 281,250, cu. yd. earth St. Landry Parish, M. J. Goudeau, Jr., Opelousas, engr.

†**Ore., Bonneville**—U. S. Eng., Pittock Bl., Portland, two 5,000 gpm vertical unwatering pumps, 2 sump pumps, 2 deep well turbine pumps for Bonneville Dam, Inv. 698-42-38.

LOW BIDDERS

†**California**—U. S. Eng., 1209 8 St., Sacramento, Dec. 12, dredging $79,500 cu. yd. mate-

EARTHWORK, etc. (Low Bidders, Cont'd.)

rial Suisun Channel, 7 mi. northeast Benicia, from Bundesen & Lauritzen, Pittsburg. **$170,-**23. Est. $138,072. CD 12/5.

★**†California**—Bureau Reclamation, Custom-house, Denver, Colo., Dec. 17, fourteen 102 in. conduit tube valves for river outlets, Shasta Dam, Central Valley Project, Spec. 1016, from Hardie-Tynes Mfg. Co., 800 N. 28 St., Birming-ham, Ala., Schedules (1) **$775,000, (2) $560,-**000. CD 11/24—ENR 11/27.

†La., Harvey—U. S. Eng., foot Prytania St., New Orleans, Dec. 15, 233 ft. timber guide wall, 10 timber pile dolphins, removal 9 timber pile dolphins, portion Harvey Lock, excav. 2,000 cu. yd. earthwork, etc., Harvey Lock, from T. J. Kramer, 2010 Coney Island Ave., Brooklyn, N. Y., **$33,716.** CD 11/18—ENR 11/27.

N. Y., St. George—Comr. Docks, Pier A, foot of Battery Pl., North River, New York, Dec. 21, Contr. 2334, bulkhead wall, sewers, sewer extens., etc., Foreign Trade Zone 1, Stapleton, from General Contg. & Eng. Co., 40 Rector St., New York, **$264,809.** CD 12/8—ENR 12/8.

CONTRACTS AWARDED

†Arkansas—War Dpt., Little Rock, initial clearing land for Blue Mountain Dam Reser-voir, Petit Jean River, Yell Co., to Chernus Constr. Co., 918 N. 11 St., St. Louis, Mo., $66,777. Awarded 12/5. CD 11/11—ENR 11/13.

Calif., Fresno—Consolidated Irrigation Dist., Fresno, imprv. canals of district in Tulare, Fresno and Kings Counties, **WPA. $227,636.**

Calif., Pasadena—Repairing flood control channel, Arroyo Seco, to B. J. Bennett, Jr., 35 N. Raymond Ave. Est. **$20,000.** Bids 12/10, awarded 12/16. CD 12/4—ENR 12/11.

Conn., Hartford—Bd. Contr. & Supply, 550 Main St., Commerce St. siphon, Contr. 11, Park River flood control conduit, to E. W. Canning & Co., Collins St., East Hartford, **$17,243.** Bids 12/9. CD 12/4, under Sewers.

Md., Fairfield (sta. Baltimore)—Maryland Drydock Co., Fairfield, bulkhead, to Kauf-man Constr. Co., 1505 Race St., Phila., Pa. Over **$15,000.**

Wyo., Torrington—Goshen Irrigation Dist., imprv., exten. irrigation canals, **WPA. $74,678.**

UNCLASSIFIED

PROPOSED WORK

Alabama—RURAL ELECTRIC LINES—Sand Mountain Electric Membership Corp., M. C. Stewart, supt., Fort Payne, 75 mi. rural elec-tric lines, Jackson and De Kalb Counties. $132,000 REA allot.

Alabama — RURAL ELECTRIC SYSTEM, etc.—Tallapoosa River Electric Co-operative, Inc., J. Drake, supt., Lafayette, completing section sys., installing substation. **$35,000** REA allot.

†Ala., Mobile—WHARF—Pub. Bldgs. Ad-min., 7 and D Sts. S.W., Wash., D. C., rejected bids Oct. 30, repairing wharf, Quarantine Sta-tion. CD 10/28.

Ariz., Tucson—AIRPORT IMPROVEMENTS, —U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., indefinitely postponed bids to have been opened Dec. 15, administration bldg., Tucson municipal airport. CD 11/26—ENR 12/4 under Public Bldgs.

Arkansas — RURAL ELECTRIC LINES — Woodruff Electric Co-operative Corp., T. E. Bostick, mgr., Augusta, 55 mi. rural electric lines, Woodruff, Cross, St. Francis, Lee, Phil-lips and Monroe Counties. $60,000 REA allot.

Ark., North Little Rock—AIRPORT—O. V. Neely, mayor, airport. $250,000. CAA.

California — RURAL ELECTRIC LINES, etc.—Plumas-Sierra Rural Electric Co-opera-tive, E. J. Shelley, Portola, 44,000 volt feeder line and 44 kv. substation. **$44,000** REA allot.

Calif., Newport Beach—MOORING FLOAT—H. M. Olson 4610 6 Ave., Los Angeles, prelim-inary plans mooring float, etc. to extend 30 ft. into Rivo Alto, west portion Newport Bay.

Calif., Newport Beach—PIER, etc.—W. Mar-tin, 2805 Concord Dr., Alhambra, preliminary plans pier, mooring, ramp, float, etc., to ex-tend 30 ft. into county channel.

Calif., Wilmington — SHIPYARD — Western Pipe & Steel Co., 5717 Santa Fe Ave., Los Angeles, shipyard, 30 acres land in West Basin.

Colorado — RURAL ELECTRIC LINES — Empire Electric Assn., Inc., C. E. Stokes, supt., Dove Creek, 201 mi. rural electric lines, Dolores and Montesuma Counties. $215,000 REA allot.

Colorado — RURAL ELECTRIC LINES — Grand Valley Rural Power Lines, Inc., I. W. Patterson, supt., Grand Junction, building, acquiring 87 mi. lines, Mesa Co. **$90,000** REA allot.

Colorado — RURAL ELECTRIC LINES — Morgan County Rural Electric Assn. W. L. Parker, supt., Fort Morgan, 154 mi. rural electric lines, Adams, Washington, Morgan, Weld and Logan Counties. $228,000 REA allot.

Conn., New Britain—PARK IMPROVE-MENTS—City, P. Wks. Dpt., City Hall, imprv. Walnut Hill and Stanley, Parks, fencing Washington swimming pool and archery field, etc. $60,265. G. Molleur, City Hall, engr.

Florida—RURAL ELECTRIC LINES— Flor-ida Keys Electric Co-operative Assn., Mara-thon, R. Sawyer, co-ordinator, 115 mi. rural electric lines, Monroe Co. $208,000 REA allot.

Georgia—RURAL ELECTRIC LINES—Ami-calola Electric Membership Corp., A. C. Moore, supt., Jasper, 197 mi. rural electric line, Pickens, Gilmer, Gordon, Cherokee, Dawson and Lumpkin Counties, and in villages of Tate, Nelson and Marble Hill. $165,500 REA allot.

†Ill., Hanover—ELECTRIC DISTRIBUTION SYSTEM—Village, electric distr. sys. addns., extens., Docket Ill. 11-125. $7,325. **DPW.**

Kan., Independence — AIRPORT — Airport. $130,000. Paulette & Wilson, 1006 Kansas Ave., Topeka, engrs. CD 7/2—ENR 7/10.

Kentucky — RURAL ELECTRIC LINES — Cumberland Valley Rural Electric Co-opera-tive Corp., Pineville, J. S. Broaddus, supt., completing rural electric sys. $40,000 REA allot.

Kentucky — RURAL ELECTRIC LINES — Green River Rural Electrification Co-operative Corp., C. T. Smith, supt., Owensboro, 118 mi. rural electric lines, Hancock, Ohio, McLean, Daviess and Hopkins and Webster Counties. $143,000 REA allot.

Kentucky — RURAL ELECTRIC LINES — Jackson-Purchase Rural Electric Co-operative Corp., C. D. Harris, Paducah, 97 mi. rural electric lines, Carlisle, Graves, Livingston, Mc-Cracken, Ballard and Marshall Counties. $175,000 REA allot.

Kentucky — RURAL ELECTRIC LINES — Meade County Rural Electrification Co-opera-tive Corp., C. H. Brown, supt., Brandenburg, 69 mi. rural electric lines, Breckenridge, Ohio and Grayson Counties. $90,000 REA allot.

La., Hammond—AIRPORT—Airport, clear-ing, grading, paving, etc. Tangipahoa Parish.

Maryland—RURAL ELECTRIC LINES— Choptank Co-operative, Inc., Denton, C. A. Sennett, supt., 15 mi. rural electric lines, Dorchester Co. $59,000 REA allot.

Maryland—RURAL ELECTRIC SYSTEM— Southern Maryland Tri-County Co-operative Assn., Inc., F. Coakley, mgr., La Plata, com-pleting section sys. $34,500 REA allot.

Mo., Chillicothe—AIRPORT—$15,000 bond election soon, airport. $58,000. CD 10/10—ENR 10/16.

Mont., West Yellowstone—RURAL ELEC-TRIC DISTRIBUTION—Fall River Electrical Co-operative, Ashton, Idaho, W. H. Bratt, supt., bids soon ,76 mi. rural electric distr. line. $75,000. H. S. Nixon, Grain Exch. Bldg., Omaha, Neb., engr.

Nebraska—RURAL ELECTRIC LINES—Ger-ing Valley Rural Public Power Dist., W. F. Mc-Griff, supt., Gering, 29 mi. rural lines, Scotts Bluff Co. $26,000 REA allot.

★**N. J., Camden**—PARK—Camden Co. Park Comn., Court House, Cooper River Valley Park imprvs., grading, landscaping, etc., $532,-490. WPA. G. R. Swinton, 930 Atlantic Ave., Atlantic City, N. J., WPA engr.

New York—RURAL ELECTRIC LINES— Chautauqua & Cattaraugus Elec. Assoc., Inc., Cherry Creek, 177 mi. rural electric transmis-sion lines, Chautauqua and Cattaraugus Coun-ties. $150,000. Putnam & Woolpert, 132 N. Main St., Dayton, O., engrs. CD 11/18—ENR 11/27.

New York — SHAFT, etc. — New York City Tunnel Auth., 200 Madison Ave., New York, indefinitely postponed bids to have been opened Dec. 19, Governors Island shaft and tunnels of Brooklyn-Battery Tunnel. CD 11/18—ENR 11/27.

N. Y., New York—COMFORT STATION— Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., comforts tation, Central Park. $26,000.

N. Y., New York—DOCK, etc.—Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., rowboat dock, boathouse, Central Park. $110,000.

★**N. Y., New York**—PARK—Dpt. Parks, Ar-senal Bldg., Central Park, 64 St. and 5 Ave., park development, Soundview Park, Bronx Boro. $1,950,000.

N. Y., Rockaway Beach (sta. Far Rockaway) — BOARDWALK DECK, etc. — Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., deck and drinking fountains on Boardwalk, Queens Boro. $146,000.

N. Y., St. George—COMFORT STATION— Dpt. Parks, Arsenal Bldg., Central Park, 64 St. and 5 Ave., New York, comfort station, Wolf's Pond Park, Richmond Boro. $30,000.

★**North Carolina** and **Tennessee**—HYDRO-ELECTRIC PLANTS, etc.—Western and North Carolina Electric Membership Corp., c/o B. O. Vannort, engr., Commercial Bank Bldg., Charlotte, N. C., surveys 8 or 10 hydro-electric plants, steam generating plant, 10 dams, on Watauga, Yadkin and New Rivers, to furnish power for 29 North Carolina counties and 2 Tennessee counties. $10,000,000. D. B. Crowell, Forest City, treas.

N. C., Greensboro and **High Point**—AIR-PORT—City of Greensboro, C. W. Smedberg, mgr., and city of High Point, E. M. Knox, mgr. lengthening NE-SE runway, widening runway to 1,100 ft. drainage, lighting sys. Greensboro-High Point airport. $235,000. Ap-plied to WPA. R. Stout, Greensboro, engr.

Pennsylvania—RURAL ELECTRIC SYS-TEM—Claverack Electric Co-operative, Inc., Towanda, C. E. Jakway, mgr., completing sec-tion sys. $29,500 REA allot.

★**Pa., Norristown**—AIRPORT—Civil Aero-nautics Auth., Norristown, airport. $825,-000.

Pa., Reading—RUNWAYS, etc.—Exten. main runways, airport, grading, etc. $25,000. R. S. Chubb, city engr.

R. I., Newport—AIR RAID SHELTER—City, Newport Housing Auth., Realty Bldg., 350 family air raid shelter, Park Holm Develop-ment. E. H. Wigham, 315 S. 15 St., Phila., Pa., archt.

South Carolina—RURAL ELECTRIC LINES —Aiken Electric Co-operative, Inc., T. W. Henderson, supt., Aiken, 80 mi. rural electric lines, Aiken, Orangeburg, Saluda, Edgefield, McCormick, Lexington and Barnwell Counties. $96,000 REA allot.

South Carolina—RURAL ELECTRIC SYS-TEM—Broad River Electric Co-operative, Inc., Gaffney, G. G. Inman, supt., completing section sys. $27,000 REA allot.

South Carolina—RURAL ELECTRIC SYS-TEM—Lynches River Electric Co-operative, Inc., W. A. Cauthen, supt., Pageland, com-pleting section sys. $50,000 REA allot.

Texas—RURAL ELECTRIC LINES— Kim-ble Electric Co-operative, Inc., c/o W. O. Dickerson, pres., Junction, 314 mi. rural elec-tric lines, Kimble Co. $177,000 REA allot. Beavers, Lodal & Wells, Smith-Young Tower, San Antonio, engrs. CD 11/21—ENR 11/27.

Texas — RURAL ELECTRIC SYSTEM — Pedernales Electric Co-operative, Inc., John-son City, L. McWilliams, supt., completing section sys. $65,000 REA allot.

★**†Tex., Pottsboro**—AIR CORPS TRAINING CENTER—U. S. Eng., Citizens Bank Bldg., Denison, additonal expanson, 47 frame bar-racks, mess halls, etc., Air Corps Training Center. $850,000.

†Tex., Weslaco—LAND DEVELOPMENT—Farm Security Admin., The Mall, 12 to 14 Sts. S.W., Wash., D. C., imprv. 26,000 acres land resettlement program, clearing, grub-bing, grading, filling, draining, etc. $150,000.

Virginia—RURAL ELECTRIC SYSTEM—R. A. R. C. Electric Co-operative, M. R. Sea brooke, supt., Millboro, completing section sys. $48,000 REA allot.

Washington—RURAL ELECTRIC LINES— Big Bend Electric Co-operative, Inc., H. H. Hudlow, supt., Ritzville, 185 mi. rural elec-tric lines, Adams and Franklin Counties. $170,000 REA allot.

★**Wash., Seattle** — PIERS, etc. — Port of Seattle, Bell St. terminal, plans to be com-pleted within 30 days, 1st phase, sewers, dredging, bulkhead work for 2 piers and transit sheds, Connecticut St. $5,000,000. CD 8/1—ENR 8/7.

★**†Wash., Walla Walla**—AIR CORPS RE-CEPTION-TRAINING CENTRE — U. S. Eng., Central Bldg., Seattle, bids soon various units air corps reception-training center. $7,-500,000. J. Graham, Dexter Horton Bldg., Seattle, archt. CD 12/12—ENR 12/18.

BIDS ASKED

Bids Asked December 29

†Mo., Vichy — AIR FIELD IMPROVE-MENTS—U. S. Eng., 816 U. S. Court House & Custom House, St. Louis, deep well, pump. station, Vichy Air Field; adv. ENR 12/25. CD 10/17—ENR 10/33.

Man., Carberry—HANGAR—Dpt. Munitions & Supply, Ottawa, Ont., hangar, for Dominion Govt., Ottawa, Ont. $100,000. Dpt. Air De-fense, Ottawa, Ont., archt.

Bids Asked On or About December 30

Ariz., Gila Bend—AIRPORT—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., air-port imprvs., clearing, grading, etc. CAA.

Bids Asked About January 1

★**†Tex., San Antonio** — HANGARS, etc. — U. S. Eng., Federal Bldg., Galveston, 3 additional airplane steel hangars, $585,000; 38 hospitalization and medical service bldgs., utilities, etc., $600,000, both Kelly Field. CD 12/10 and 10/14—ENR 12/18 and 10/16.

Bids Asked January 2

†Calif., Long Beach—FUELING SYSTEM—U. S. Eng., 751 S. Figueroa St., Los Angeles. A. C. fueling sys., Long Beach Ferrying Com-mand. Over $25,000.

†N. Y., Elmira—AIRPORT—Regional Man-ager CAA, La Guardia Airport, 170,000 cu. yd. grading, 250,000 sq. yd. paving, draining, lighting, Chemung County Airport; adv. ENR 12/25.

†Tex., Waco—APRON, etc.—U. S. Eng., Fed-eral Bldg., Galveston, apron, runways, taxi-ways, paving, grading, electric and water services, Basic Flying School.

Bids Asked January 3

†Ariz., Mesa—TOWER, etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., control tower and incinerator. Over $25,000.

Idaho, Gooding—AIRPORT—Regional Mgr. Civil Aeronautics Admin., King Co. Airport,

UNCLASSIFIED (Bids Asked, Cont'd.)

Seattle, Wash., airport grading, paving, lighting; adv. ENR 12/25. CD 11/10—ENR 11/13.

Bids Asked About January 5

†Tex., Abilene—AIRPORT—U. S. Eng., Caddoa, Colo., airport imprvs., tent frames, day room bldg., 2 mess bldgs., administration and dispensary bldg., etc. CD 10/14—ENR 10/16.

Bids Asked January 5

Ga., Cordele—AIRPORT—U. S. Eng., Mobile, Ala., airport, asphaltic and concrete paving, storm sewers, etc. CAA.

Nebraska — TRANSMISSION LINE CONDUCTOR—Central Nebraska Public & Power Irrigation Dist., G. Wallace, pres., 1507-1509 W. Second St., Hastings, Group 104A, copperweld conductor for transmission line, Group 104B, structures supporting same, etc.

LOW BIDDERS

Alabama — AIRPORT IMPROVEMENTS — U. S. Eng., Federal Bldg., Mobile, Dec. 16, imprv. airport, between Opelika and Auburn, from Smith Eng. & Constr. Co., West Pensacola, Fla., and Noonan Constr. Co., 1001 E. Gregory St., Pensacola, Fla., total alternate (1) **$237,433,** total alternate (2) **$226,739.** CD 12/1—ENR 12/4.

†Calif., Taft—LANDING MAT—U. S. Eng., Wright Bldg., 1208 8 St., Sacramento, Dec. 16, landing mat, Gardner Field near here, Inv. 1105-42-78, from Fredericksen & Westbrook, 212 13 St., Sacramento. **$173,408.** Est. $240,-021. CD 12/9.

†Kan., Kansas City—RUNWAY, etc.—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., Dec. 17, additional runway (NE-SW), 2 taxi strips, drainage, Fairfax Airport, from Koss Constr. Co., 205 Old Colony Bldg., Des Moines, Ia. **$349,440.** Est. $406,808. CD 12/9—ENR 12/11.

†Mass., Chicopee Falls—AIR BASE IMPROVEMENTS — U. S. Eng., 819 Industrial Trust Bldg., Providence, R. I., Dec. 15, 9 units ordnance facilities, Army Air Base, Westover Field, from Miller-Davis Co., 1 William St., Wallingford, Conn., **$206,000.** CD 12/4—ENR 12/11.

N. Y., New York — BULKHEAD SHEDS — Comr. Docks, Pier A, foot of Battery Pl., North River, Dec. 19, Contr. 2247, reconstruction, repairs bulkhead sheds of Piers New 3 and 2, etc., North River, from Balaban-Gordon Co., 220 W. 43 St. **$154,614.** CD 12/11—ENR 12/18.

†Oregon—TRANSMISSION LINE TOWERS—Bonneville Power Admin., 811 N.E. Oregon St., Portland, Dec. 5, steel towers for Kelso-Longview loop, Inv. 2445, from American Bridge Co., Frick Bldg., Pittsburgh, Pa., **$84,844.**

CONTRACTS AWARDED

†Mass., Fort Devens—LANDSCAPING, etc.—U. S. Eng., Fort Devens, landscaping, grading, etc., Inv. 15, to W. P. Hershy, 564 Huron Ave., Cambridge. **$33,273.**

Nebraska—OIL PIPELINE—Skelly Oil Co., Skelly Bldg., Tulsa, Okla., 10 mi. oil pipeline from Barada, Neb., to Falls City, and pump. plant, Barada, to Basin Constr. Co., c/o owner, Barada. **$40,000.** CD 12/2—ENR 12/4.

Neb., Lincoln—HANGAR—Lincoln Aeronautical Institute, Lincoln, general contract, hangar, to A. O. Anderson & Sons, 635 S. 36 St. **$37,870.** F. Craig, Stuart Bldg., archt.

N. J., Newark—PARK IMPROVEMENTS—Essex Co. Park Comn., 115 Clifton Ave., imprv. parks, incl. 7 bridges, fences, etc., **WPA. $55,000.** R. D. Crater, 115 Clifton Ave., engr.

N. Y., Sardinia—GAS SYSTEM, etc.—Iroquois Gas Corp., Iroquois Bldg., Buffalo, natural gas dist. sys., pipelines and plant, etc., own forces and separate contracts. **$48,000.** CD 11/3—ENR 11/6.

Texas—RURAL ELECTRIC LINES—Bandera Electric Cooperative, Bandera, 44 mi. rural electric power lines, day labor. **$40,000.** CD 10/9—ENR 10/16.

★**†Tex., Waco** — FLYING SCHOOL — U. S. Eng., Federal Bldg., Galveston, basic flying school, to J. W. Bateson, 7762 San Fernando St., Dallas, and Box 1332, Fort Sill, Okla. **$1,856,580.** Bids 12/9. CD 12/11—ENR 12/18.

Tex., Wichita Falls—AIRPORT—Excavating, filling, Kell Airport, to L. J. Miles Constr. Co., Wichita Falls. Approx. **$32,000.** Est. $40,000.

Wash., Kirkland — LANDSCAPING — King Co., County-City Bldg., Seattle, landscaping 10 acre area, clubhouse, log shelter, playground, etc., **WPA. $63,000.** J. R. Heath, County-City Bldg., Seattle, engr. CD 12/2—ENR 12/4.

★**†C. Z., Fort Gulick**—TAXI STRIPS, etc.—U. S. Eng., Quarry Hts., taxi strips, aprons, runways, roads, to McCarthy Bros. Constr. Co., Box C-C, Cristobal. **$622,771.**

†C. Z., Howard Field—TAXI STRIPS, etc.—U. S. Eng., Howard Field, taxi strips, aprons, street runways, roads, to Froemming Bros. Inc. of Texas, 2927 N. Holton St., Milwaukee, Wis. **$462,324.**

★**B. C., Port Hardy**—AIRPORT—Dpt. Transport, Ottawa, Ont., airport, clearing, grubbing, smoothing, grading, etc., to General Constr Co. Ltd., Granville Island, Vancouver, approx. **$995,000.** Bids 10/8. CD 9/23—ENR 9/25.

★**N. S., Sydney**—AIRPORT—Dpt. National Defense for Air, Ottawa, Ont., airport on east coast, to Dominion Constr. Corp. Ltd., **217 Bay St., Toronto, Ont. $1,528,000.**

LATIN AMERICA

Mexico, Mexico City—Pan-American Exposition, c/o Pascual Rubio, plans land development and buildings for exposition to be held between Oct. 12, 1942, and May 30, 1943. Initial cost $5,000,000.

South America, Chile, Chuquicamata—Republic of Chile, Santiago, plans water power development, copper mines near Peruvian border, 300,000 hp. planned. Guillermo Moore, Corporation de Fomento de la Production, Santiago, engr.

PUBLIC BUILDINGS

PROPOSED WORK

†Ala., Mobile—School Comrs. Mobile Co., school, Docket Ala. 1-146, $216,000. **DPW.**

†Ala., Toulminville—Bd. School Comrs. Mobile Co., Mobile, 2 story school, Docket Ala. 1-178. $301,913. **DPW.**

Ark., Little Rock—State Military Dpt., Capitol Bldg., plans by Erhart & Eichenbaum, Gem Bldg., 147x203 ft. armory. $150,000.

†Ark., Malvern—Hot Spring County General Hospital, plans by Brooks & Sutherland, Rustin, hospital addn. $160,000. **DPW.**

†Calif., Alameda—City Bd. Educ. and Alameda Unified School Dist., school, Docket Calif. 4-259. $8,427. **DPW.**

†Calif., Vallejo—City, 3 new fire stations, also 1 addn., Docket Calif. 4-132. $418,400. **DPW.**

†Ga., Albany—Hospital Auth., Albany City and Dougherty Co., new hospital, also alterations, addn. Putney Memorial Hospital, Docket Ga. 9-146. $160,000. **DPW.**

Ill., East St. Louis—East St. Louis Health Dist. D. R. C. Farrier, Health Dist. dir., 325 E. Bway., plans by Johnson, Mack & Saunders, Murphy Bldg., Collinsville, brick, concrete, stone health center. $200,000. Applying for DPW funds. CD 12/8—ENR 12/11.

★**Ill., Salem** — Salem Community High School Dist., B. E. Gunn, supt., voted $850,000 bonds, concrete, stone, brick, high school. Smith, Kratz & Strong, Urbana, archts. CD 12/2—ENR 11/6.

Ia., Des Moines—Broadlawn Polk County Hospital, G. T. Schlenger, secy., completion hospital. Applied to DPW for $212,979 gr.

Ia., Ottumwa—F. Gibbons, city clk., hospital. $400,000.

Kan., Linsborg — E. W. Jernberg, mayor, voted $51,000 bonds, power plant imprvs. CD 12/2—ENR 10/23.

†Md., Cabin John—United States Housing Auth., 18 and F Sts. N.W., Wash., D. C., outfall sewers for defense housing, Docket Md. 18-153. $44,000. **DPW.**

†Mo., Fort Leonard Wood—U. S. Eng., cancelled bids to have been opened Dec. 16, 4 mess hall bldgs., 2 vehicle sheds, etc. CD 12/2—ENR 12/4.

†Mass., West Roxbury—Veterans Consjr. Bureau, Arlington Bldg., Wash., D. C., 6 story, brick, steel, granite hospital.

†N. J., Keasbey—General Ceramics Co., Crows Mill Rd., plans by G. Hayes, 566 Westfield Ave., Westfield, 1 story, brick, hollow tile steatite insulator bldg. addn. $132,876 incl. equip. Federal funds granted.

★**†N. J., Fort Monmouth**—War Dpt., 20 St. and Constitution Ave. N.W., Wash., D. C., fifty 1 story cantonment bldgs. $733,758.

N. Y., Brooklyn—Dpt. Hospitals, 125 Worth St., New York, reconstructing, imprv. Cumberland Hospital. $175,000.

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, 76th Precinct Police Station House. $195,000.

★**N. Y., Brooklyn**—Dpt. Hospitals, 125 Worth St., New York, laboratory, morgue, Kings County Hospital. $588,000.

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, Canarsie Branch library. $150,000.

★**N. Y., Brooklyn**—Dpt. P. Wks., Municipal Bldg., New York, auditorium, central museum, Brooklyn Institute Arts & Sciences. $500,000.

★**N. Y., New York**—Dpt. Hospitals, 125 Worth St., altering out-patient department bldgs., Bellevue Hospital, Manhattan Boro. $705,000.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., storage vaults, altering Sect. 4, American Museum Natural History. $150,000.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Clason's Point Branch library, Bronx Boro. $180,000.

★**N. Y., New York**—Dpt. Hospitals, 125 Worth St., laundry, garage, firehouse, mechanics shops, Welfare Island. $1,685,000.

★**†O., Euclid**—Chase Brass & Copper Co., C. E. Hart, Jr., in charge, Waterbury, Conn., shell mfg. plant. $10,000,000. W. Smith, 1155 Babbitt Rd., Cleveland, owner's plant engr. Stone & Webster Eng. Corp., 49 Federal St., Boston, Mass., engrs. Defense Plant Corp. will finance.

O., Lima—Allen County Historical Society, Lima, 1 story, bsmnt. museum, W. Market St. $150,000.

Okla., Norman—University of Oklahoma, Norman, plans by J. Smay, Norman, geology and mineral resources bldg., University of Oklahoma. $450,000. Appropriation made. CD 6/11—ENR 6/26.

★**†Pa., Chambersburg**—U. S. Eng., 1 area, Douglas Sts. N.W., Wash., D. C., army ammunition depot, Letterkenny Army Depot, Twps., northwest of here. $17,000,000. CD 12/10—ENR 12/18, under Pennsylvania.

†Pa., Titusville—Bd. Educ., Titusville School Dist. plans by Beck & Tinkham, Bailey Bldg., Jamestown, N. Y., Junior-Senior High School addn., Docket Pa. 36-115. $70,500. DPW. CD 12/3—ENR 12/11.

†S. C., Charleston—St. Francis Xavier Infirmary, 264 Calhoun St., 4th story hospital addn., Docket S. C. 38-147, **DPW.**

†Tenn., Bradford—Gibson Co., Trenton, Bradford School addn., Docket Tenn. 40-176, $20,000. **DPW.**

†Tenn., Gibson—Gibson Co., Trenton, Gibson City School addn., Docket Tenn. 40-161, $34,000. **DPW.**

†Tenn., Medina — Gibson Co., Trenton, Medina School addn., Docket Tenn. 40-164, $15,000. **DPW.**

Tenn., Munford — Tipton Co., Covington, Munford School addns., alterations, Docket Tenn. 40-146. $24,000. **DPW.**

Tenn., Tullahoma—State, B. O. Duggan, chn. Bd., dormitory for employees. Over $150,000.

Tex., Dallas—Highland Park School Bd., plans by M. Lemmon, Tower Petroleum Bldg., school, $160,000; 1 story Junior High School unit, gymnasium, shop rooms, $175,000; plans by Flint & Broad, Burt Bldg., Dallas, 1 story high school unit. $150,000. CD 11/21—ENR 11/24.

★**†Tex., Beaumont**—Mutual Ownership Defense Housing Div. FWA, North Interior Bldg., Wash., D. C., approx 600 dwellings for defense workers. $1,750,000.

†Tex., San Antonio—U. S. Eng., Moore Bldg., ordnance bldg., Brooks Field.

†Tex., San Antonio—U. S. Eng., Moore Bldg., ordnance bldg., Kelly Field.

★**†Utah, Mendon**—War Dpt., 20 St. and Constitution Ave. N.W., Wash., D. C., incendiary bomb plant. $3,000,000.

†Wash., Everett—U. S. Eng., Central Bldg., Seattle, bids soon 1 story, 18x40 ft. frame radio station bldg., Paine Field.

†Wash., McChord Field—U. S. Eng., Central Bldg., Seattle, bids soon three 1 story, 25x100 ft. frame hospital ward bldgs.

†Wash., Spokane—U. S. Eng., Central Bldg., Seattle, bids soon 1 story, 18x40 ft. frame radio station bldg., Geiger Field.

★**†Wash., Tacoma**—Pub. Bldgs. Admin., 210 N. Anderson St., 400 housing units, Pine and S. 35 Sts. $1,400,000. CD 12/15—ENR 12/18.

Wash., Tacoma—Pierce Co., Court House, plans by Mock & Morrison, 228 Perkins Bldg., 4 story, bsmnt., rein.-con. hospital addn. $200,000. DPW funds sought. CD 9/8—ENR 9/11.

★**†Ont., Toronto**—Govan, Ferguson & Lindsay, archts., 515 Jarvis St., bids soon St. Mary's Hospital, Bathurst St., North York Twp., near here, for Rev. Sisters of Misericorde, 550 Jarvis St. $500,000.

★**Que., Bordeau**—Quebec Provincial Govt., Dpt. P. Wks., Quebec City, bids soon prison for criminally insane. $1,000,000.

Que., Quebec City—Dominion Govt., Ottawa, Ont., plans by Dpt. National Defense, Ottawa, Ont., barracks, etc., for Canadian Women's army Corps., Monument Des Braves Park. $150,000.

Que., St. Lin—Reverend Sisters of Providence, St. Lin, hospice. $150,000.

BIDS ASKED

Bids Asked December 30

†Me., Bangor—Pub. Bldgs Admin., 7 and D Sts. S.W., Wash., D. C., maintenance garage Bangor Airport Housing.

†Mass., Chicopee Falls—U. S. Eng., 819 Industrial Trust Bldg., Providence, R. I., 145ft. ft. octagonal brick gate house, main entrance Westover Field.

★**R. I., Woonsocket**—Woonsocket Housing Auth., 285 Main St., W. M. Gauvreau, chn., 300 unit housing, Project R.I. 3-1. $1,100,000 USHA. Change of bid date. Walter Fontaine Inc., 285 Main St., archts. Charles A. Maguire & Associate, 613 Turks Head Bldg., Providence, engrs. CD 12/8—ENR 12/11 under Ba.

Bids Asked December 31

†Ga., Fort Oglethorpe — Federal works Agency, 18 and F Sts. N.W., Wash., D. C., maintenance garage, etc.

PUBLIC BLDGS. (Proposed Work, Cont'd.)

†Ga., Rossville—Pub. Bldgs. Admin., 7 and D Sts. S.W., Wash., D. C., maintenance garage, driveway, etc., Defense Housing Project.

†N. Y., Hempstead—Pub. Bldgs. Admin., 7 and D Sts. S.W., Wash., D. C., maintenance garage, etc., Defense Housing Project, Mitchell Field.

†Mass., Fort Devens—Pub. Bldgs. Admin., 7 and D Sts. S.W., Wash., D. C., maintenance garage, etc., Defense Housing.

Bids Asked January 2

†N. Y., Fort Hamilton (Sta. Brooklyn)—Con. Q.M., 120 Wall St., New York, temporary housing, utilities; adv. ENR 12/25.

†Ore., Portland—U. S. Eng., 628 Pittock Blk., motor repair shop, type SP-14, modified oil storage house, exten. electric utilities, Portland Air Base, Inv. 698-42-388.

†Pa., Aliquippa—Beaver County Housing Auth., R. Bennett, chn., Court House, Beaver, 50 housing units, Project 36058X, for USHA. Extended date. CD 12/15.

†Pa., Pulaski—Beaver County Housing Auth., Monaca, 100 defense housing units, Pulaski Twp., Project 36055 X, for USHA. Extended date. CD 12/15—ENR 12/18.

†Utah, Ogden—Pub. Bldgs. Admin., 7 and D Sts. S.W., Wash., D. C., maintenance garage, etc., Defense Housing Project.

†Washington—Bureau Reclamation, Custom House, Denver, Colo., furnishing, del. fabricated structural steel for bus structure for left 115 kv. switchyard, Grand Coulee power plant, Columbia Basin Project, Spec. 1603-D.

Bids Asked January 3

†Tex., Houston—U. S. Eng., Federal Bldg., Galveston, storage rooms, etc., in type S.H.-18 bldg., Ellington Field.

Bids Asked January 5

N. J., West Milford—Bd. Educ., Town Hall, 2-story, bsmnt., brick, steel central grade school, gymnasium, etc. Macopin Rd. $150,000. C. A. Wood, 640 Palisade Ave., Jersey City, archt. A. Walton, 900 Bergen Ave., Jersey City, engr.

†Tex., Ropesville—Office Regional Finance and Business Manager, Farm Security Administration, Masonic Bldg., Amarillo, migratory labor camp, facilities, Hockley Co, for Farm Security Admin., Dpt. Agriculture, Parry Ave. at Commerce St., Dallas. $150,000.

Bids Asked January 6

Ark., Conway—Conway Housing Auth., 30 unit housing, Project Ark-6-1 and 20 unit housing Project Ark-6-2. USHA. Extended date. CD 12/8—ENR 12/11.

†Ill., Savanna—Pub. Bldgs. Admin., 7 and D Sts. S.W., Wash., D. C., maintenance garage, etc., Defense Housing Project, Savanna Proving Ground.

N. Y., Jamestown—Bd. P. Utilities, City Hall, T. V. McKee, secy., 3,000 kva. substation, Harrison St. $40,000. CD 10/29—ENR 11/6.

Bids Asked January 7

Ala., Fort Payne—Fort Payne Housing Auth., W. W. Hill, chn., 48 unit housing, Project Ala-11-1. USHA. Extended date. CD 11/14—ENR 11/20.

†Ore., Klamath Falls—Bureau Reclamation, Klamath Falls, 4 room frame residence, Pumping Plant D, Modoc unit, Tule Lake Div., Klamath Project, near here, Spec. 1602-D.

Bids Asked January 8

Ga., Thomasville — Thomasville Housing Auth., 36 unit housing, Project Ga-24-1 and 60 unit housing, Project Ga-24-2. USHA. Extended date. CD 12/11—ENR 12/18.

Bids Asked January 12

Ala., Guntersville — Guntersville Housing Auth., 40 unit housing (for white), Project Ala-14-1 and 10 unit housing (for negroes), Project Ala-14-2. USHA. Extended date. CD 11/13—ENR 11/13.

P. R., Mayaguez—Municipal Housing Auth. of Mayaguez, 337 housing units, Project P. R. 4-2. USHA. Extended date. CD 12/8—ENR 12/11.

Bids Asked January 13

Calif., San Francisco—San Francisco City and County Housing Auth., 525 Market St., 150 housing units, Project Cal. 1-8. $400,000. USHA. Extended date. J. H. Mitchell, 369 Pine St. and L. W. Hurd, 442 Post St., archts. CD 12/8—ENR 12/11.

Bids Asked January 14

N. Y., Brentwood—Commissioner Mental Hygiene, State Office Bldg., Albany, bakery addn., Pilgrim State Hospital. $57,000.

P. R., Ponce—Municipal Housing Auth. of Ponce, 200 housing units, Project PR 1-7. USHA. Extended date. CD 12/8—ENR 12/11.

Ark., Fort Smith—Fort Smith Housing Auth., 176 unit housing, Project Ark-3-1. USHA. Extended date. CD 12/8—ENR 12/11.

N. C., Concord—Concord Housing Auth., 46 unit housing, Project NC-8-1 and 46 unit housing, Project NC-8-2. USHA. Extended date. CD 12/15—ENR 12/18.

Bids Asked January 19

P. R., Ponce—Municipal Housing Auth., Ponce, P. R., 280 housing units, Project PR 1-2. USHA. Extended date. CD 12/8—ENR 12/11.

Bids Asked January 20

†D. C., Wash.—Federal Security Agency, 4 and Independence Ave. S.W., additional bldgs., St. Elizabeth Hospital, Nichols Ave., beyond Anacostia.

Pa., Uniontown—Fayette County Housing Auth., H. Mulligan, exec. dir., Union Trust Bldg., 40 unit housing, Project Pa-15-2, 150 unit housing, Project Pa-15-3. USHA. Extended date. CD 12/8—ENR 12/11.

Bids Asked January 22

†Arizona-California — Bureau Reclamation, Customhouse, Denver, Colo., power transformers, switching equip., lightning arresters, voltage regulator, ground-fault neutralizer, for Phoenix, Fort Huachuca, Tucson and Coolidge substations, Parker Dam Power Project, Spec. 1923; adv. ENR 12/25.

D. C., Wash.—Alley Dwelling Auth., 1300 E St. N.W., Wash., D. C., James Creek Housing, Project DC 1-3, Half, Canal, M and O Sts. USHA. Extended date. CD 12/10—ENR 12/18.

N. Y., Utica—Adjutant General Div. Military & Naval Affairs, Executive Dpt., Capitol, Albany, addns. and reconstructing infantry armory. $246,800. Extended date. CD 11/19—ENR 11/27.

Bids Asked January 28

†Washington—Bureau Reclamation, Customhouse, Denver, Colo., main and auxiliary control, load and frequency control and station service distr. equip., 6,900 volt switchgear for Units L-4 to L-9 (inclusive) Grand Coulee power plant, Columbia Basin project, Spec. 1022; adv. ENR 12/25.

LOW BIDDERS

★Calif., Los Angeles—Housing Auth. of city of Los Angeles, 1031 S. Bway., Dec. 16, 449 unit part 2 and 3 story, Wm. Mead homes, Proj. Cal. 4-6, from Baruch Corp., 625 S. Olive St. **$1,329,055.** USHA. CD 11/27—ENR 3/27.

Calif., Richmond—Richmond Housing Auth., 271 10 Ave., Dec. 16, 102 unit Nystrom Village housing, Project Cal. 10-2, from L. C. Dunn, Monadnock Bldg., San Francisco. **$289,202.** USHA. CD 11/13—ENR 11/20.

†N. Y., Massena—Farm Security Admin., The Mall between 12 and 14 Sts. S.W., Wash., D. C., Dec. 16, 100 prefabricated duplex 2 family residences, from JAJ Constr Co., 268 41 St., Brooklyn. **$263,400.** CD 11/25—ENR 11/27.

†Mass., Watertown—U. S. Eng., Army Base, Boston, Dec. 15, 3 story, bsmnt., 90x93 ft., brick, steel laboratory, Watertown Arsenal, from J. J. Powers Co., 238 Main St., Cambridge. **$259,540.** CD 12/8—ENR 12/11.

†O., Cleveland—National Advisory Com. for Aeronautics, Langley Field, Hampton, Va., electric Substation C, Cleveland Airport, from Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., **$68,000.**

★Pa., Chester—Chester Housing Auth., 5 and Welsh Sts., Dec. 16, 350 unit housing, project Pa-7-3, Buckman Village, from Stofflet & Tillotson, 2043 Eastburn Ave., Phila., **$1,090,000** ***plumbing, from Nicholas Connolly, Inc., 1404 N. 18 St., Phila., **$203,296*****heating, from Heating Maintenance Corp. of New York, 220 E. 138 St., New York, N. Y., **$171,600.** USHA. CD 12/8—ENR 12/11.

★Wash., Seattle—Seattle Housing Auth., Broadway Ave. and Yesler Way, Dec. 18, 178 unit Yesler Terrace Housing Project T Wash. 1-5 from Macri, Mullen & Strand, 1222 8 Ave. W., **$515,800.** USHA. CD 12/2—ENR 12/4.

★Wash., Tacoma—City, Dec. 15, one 55,000 hp. hydraulic turbine, La Grande power house, and two 34,500 hp. turbines, Alder power house, from Pelton Water Wheel Co., 2929 19 St., San Francisco, Calif., **$1,228,700** ***40,000 kw. generator, La Grande power house, from Allis-Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., **$277,850,** plus $23,100 for erection***two 25,000 kw. generators, Alder power house, from General Electric Co., 1 River Rd., Schenectady, N. Y., **$289,055,** plus $27,775 for erection. CD 11/27 ENR 12/4.

CONTRACTS AWARDED

★†Ariz., Miami—Castle Dome Copper Co., subsidiary Miami Copper Co., 61 Bway., New York, N. Y., copper plant, to W. A. Bechtel Co., 155 Sansome St., San Francisco, Calif. Est. **$9,000,000.** Defense Plant Corp. will finance. CD 11/24—ENR 11/27.

†Calif., Lompoc—U. S. Eng., Camp Cooke, target range bldgs., ranges, utilities, etc., to MacDonald & Kahn, Inc., Financial Center Bldg., San Francisco, and J. F. Shea Co., Inc., 617 S. Olive St., Los Angeles. **$267,762.**

†Calif., Stockton—U. S. Eng., Fort Mason, San Francisco, specialist mechanics school, to Meyer Bros., 735 Portola Dr., San Francisco. **$373,670.** Bids 11/26. CD 12/2—ENR 12/4, under LB.

★D. C., Wash.—Pub. Bldgs. Admin., 7 and D Sts. S.W., temporary office bldg., S. 7 St. and Jefferson Dr. S.W., to Ross Eng. Co., 3308 14 St. N.W., **$658,000** cost plus fixed fee.

★D. C., Wash.—Pub. Bldgs. Admin., 7 and D Sts. S.W., temporary Federal Office Bldgs. T and U, Constitution Ave. 12 to 14 Sts., to George A. Fuller Co., Munsey Bldg. **$1,658,000** cost plus fixed fee.

†Ind., Jeffersonville—U. S. Eng., laboratory bldg. addn., to Pearson Constr. Co., Inc., 311 9 St., Benton Harbor, Mich. **$93,522.**

★†Ind., Fort Wayne—General Electric Co., 1635 Bway., turbo superchargers and geared impellers plant for War Dpt., to Stone & Webster-Eng. Corp., 49 Federal St., Boston, Mass. **$8,000,000.** Defense Plant Corp. will finance. Cost with equip., $25,011,838. CD 10/10—ENR 10/16.

Mass., Methuen (br. Lawrence) — Dpt. Streets, 290 Bway., 2 story, 60x115 ft., brick, steel utility plant, garage shop and repair facilities, to L. J. Santucci, 160 Park Ave., Arlington. Est. **$45,000.** Bids 12/3. CD 11/27—ENR 11/19.

†Mass., Watertown—U. S. Eng., Watertown Arsenal, brick, steel Bldg. 41 addn., to Tredennick-Billings Co., 10 High St., Boston. **$274,-784.** Bids 12/10. CD 12/1—ENR 12/4.

Mich., Battle Creek—Bd. Educ., Urbandale School Dist., 2 story, bsmnt., brick, steel, rein.-con. school, plain fdn., to Phelps-Wagner Co., Battle Creek. Est. **$150,000.** Bids Dec. 2. CD 11/25—ENR 11/27.

★†N. J., Dover—Pub. Bldgs. Admin., 7 and D Sts. S.W., Wash., D.C., 300 frame defense housing units, S. Salem St., Project 28101 X, to Daniel J. Cronin, Inc., 717 S. Orange Ave., Newark. **$1,081,333.** Dec. 1. CD 12/2—ENR 12/4 under LB.

†N. J., Kearny (br. Arlington) — Federal Shipbuilding & Drydock Co., Lincoln Hy., 1 story, 100x400 ft. storage shed, frame metal siding, Shipyard, to Carl Buhr, Inc., Grand Central Terminal, New York, N. Y. **$63,000.** Federal funds involved.

†N. Y., Watervliet—U. S. Eng., Watervliet Arsenal, structural metal work for tank repair bldg., to Bethlehem Fabricators, Inc., Bethlehem, Pa. **$59,740.** Bids 12/5. CD 11/26.

★†Pa., Clairton — Div. Defense Housing, FWA, 811 Vermont Ave. N.W., Wash., D. C., 132 defense housing units, Proj. 36152X, to Navarro Corp., 6219 Broad St., Pittsburgh, **$554,800.** Bids 11/3. CD 11/8—ENR 11/27 under LB.

Tenn., Nashville—Nashville Housing Auth., 212 Warner Bldg., administration service bldgs. for James A. Cayce Homes, Proj. Tenn. 5-1 and 5-1-A, and J. C. Napier Homes, Proj. Tenn. 5-2 and 5-2-A, to John Felmley Co., Bloomington, Ill. **$164,700.** USHA. Bids 12/5. CD 11/24—ENR 11/27.

★Tex., Stephenville—Bd. Directors A. & M. College, F. M. Law, pres., College Station, 3 and 4 story girls' dormitory, 2 story, agricultural and storage bldg., and 4 story boys' dormitory, to W. S. Bellows Constr. Co., Bankers Mortgage Bldg., Houston. **$533,-561.** Bids 12/6. CD 12/11—ENR 12/18.

†Utah, Ogden—U. S. Eng., Ogden Ordnance Depot, field ambulance station, utilities shop bldg., to James I. Barnes Constr. Co., Builders Exch. Bldg., Santa Monica, Calif. **$98,739.**

★†Utah, Ogden—U. S. Eng., 751 Figueroa St., Los Angeles, Calif., airplane repair shop, etc., Hill Field, to Robert E. McKee, 5824 S. Central Ave., Los Angeles, Calif. **$1,-029,700.** CD 12/12—ENR 12/18 under LB.

†Va., Alexandria — Alexandria Housing Auth., 120 defense housing units, Project Va.-44136, for USHA, to Justin C. O'Brien Co., Inc., 734 Lexington Ave., New York, N. Y. **$470,000.** Bids 11/25, awarded 12/17. CD 11/27—ENR 12/4, under LB.

★Que., St. Therese—Dpt. Munitions & Supply, Ottawa, Ont., plant exten. near here, to Angus Robertson, Ltd., 660 St. Catherine St. W., Montreal. About **$1,000,000.**

COMMERCIAL BUILDINGS

PROPOSED WORK

Conn., Bridgeport—G. J. Morrell, 490 Huntington Turnpike, 60 frame homes, 75x100 ft. lots, Broadbridge School Dist., Huntington Turnpike. $275,000.

Conn., Stamford—St. Mary's Roman Catholic Parish, D. L. Gleason, pastor, 556 Elm St., sketches by F. L. S. Mayers, 194 Ocean Dr. W., brick, stone, steel, school-convent. $150,000.

N. Y., Brooklyn—Crown Holding Corp., 26 Court St., plans by Cohn Bros., 191 Joralemon St., 6 story, 110x180 ft. apartment, 2179-99 E. 22 St. $275,000.

O., Cleveland—A. W. Hebebrand, 18900 Lorain Ave., 25 frame houses. $150,000.

O., Cleveland—Owner, c/o H. Addicott, 1591 Hayden Ave., plans by M. H. White, 750 Huron Rd., 5 unit 1 story, bsmnt., 100x235 ft., brick commercial bldg. $150,000.

O., Columbus—E. E. Smotkin, 2451 Joyce Ave., 61 homes, Bancroft St. and Republic Ave. $275,000.

O., Euclid—A. Ericson, 2596 Saybrook Rd., Cleveland, plans by L. L. Broida, 1643 Lee Rd., Cleveland, 31 frame, brick houses. $279,000.

Tex., Dallas—Bradford Memorial Hospital for Babies, 3512 Maple St., plans by Lang & Witchell, 1st Natl. Bank Bldg., 2 story, bsmnt., brick, rein.-con., cast stone nurses home, appurtenances. $150,000. Applied for DPW funds.

Tex., Houston—Ben Milam Hotel, 1521 Texas St., plans by C. D. Fairchild, Milam Hotel, 2 story, 30x105 ft. hotel unit, etc. $225,000.

COMMERCIAL BLDGS. (Cont'd.)

BIDS ASKED

Bids Asked About March 1

Pa., Erie—G. W. Stickle, archt., Commerce Bldg., 2 story, bsmnt., 69x190 ft., limestone, brick, concrete school, for Cathedral Preparatory School, Rev. V. F. Miller, headmaster, 205 W. 9 St. $250,000.

CONTRACTS AWARDED

Calif., Glendale—F. W. Woolworth Co., Financial Center Bldg., San Francisco, 1 story, bsmnt., 103x150 ft. store, Brand Blvd. and Wilson Ave., to C. L. Peck, 223 H. W. Hellman Bldg., Los Angeles. Approx. **$200,000.** J. J. Gould, Financial Center Bldg., San Francisco, consult. engr.

★**Calif., Long Beach**—Biltmore Homes, Inc., 6160 Atlantic Ave., 222 frame, stucco dwellings, Cherry Ave. Owner builds. Over **$650,000.** N. P. Rice, 756 S. Bway., Los Angeles, archt.

Calif., San Leandro—C. W. Leekins, 9533 Holly St., Oakland, (1st unit) ten 1 story homes, Foothill Blvd., day labor. Total over **$150,000.**

Calif., Sunnyvale—D. Bohannon, 1182 Market St., San Francisco, 200 homes, day labor. Over **$150,000.**

N. J., Paterson—N. J. Bell Telephone Co., 540 Broad St., Newark, 2 story, bsmnt., 44x115 ft., and 35x120 ft., L-shaped, brick, steel, telephone bldg. addn., to Campbell & Pentz, Inc., 15 E. 40 St., New York, N. Y. Est. over **$150,000.** Bids 12/5. CD 12/2—ENR 12/4.

N. Y., Dunkirk—Kinginger & Dale, c/o C. Dale, 200 Chestnut St., Fredonia, 28 frame dwellings, Roosevelt and Woodrow Aves. Owner builds. **$150,000.** CD 10/10—ENR 10/16.

★**Pa., Chester**—F. A. Collins, 506 Edgemont Ave., residences, Concord Rd. Owner builds. **$500,000.**

Pa., Germantown (sta. Phila.)—I. Stanhart Real Estate Trust Bldg., Phila., residences, West Germantown, near here. Owner builds. **$150,000.**

Pa., Phila.—M. Orleans Constr. Co., 801 W. Rockland St., residences, Ashdale St. Owner builds. **$170,000.**

Tex., Brownwood—Brownwood Sales Rent Corp., c/o H. C. Cravens, pres., Brownwood, 40 or more 1 story, frame, semi fireproof dwellings, force account. **$150,000.** Mauldin & Lovett, 521 W. Beauregard St., San Angelo, archts. CD 12/17.

INDUSTRIAL BUILDINGS

PROPOSED WORK

Ala., Gorgas — STEAM PLANT — Alabama Power Co., 600 N. 18 St., Birmingham, steam plant.

Ark., Sweet Home—PLANT—Dulin Bauxite Co., P. H. Dulin, Jr., pres., Sweet Home, bauxite drying plant. $50,000.

Calif., Alameda—SHOP—United Engineering Corp., foot of Main St., shop addns. $50,000.

Calif., Berkeley—FACTORY—C. Joost, 827 Bancroft Way, 1 story factory. $40,000.

Calif., Oakland—FACTORY—Pacific Materials Co., 758 High St., factory. $40,000.

Calif., San Jose — CANNERY — Richmond-Chase Co., 380 Stockton Ave., cannery addns. $45,000.

Ill., Monmouth — PLANT — Western Stoneware Co., Monmouth, replacing Plant 2. $100,000 with equip.

La., Lake Charles—REFINERY—Continental Oil Co., Ponca City, Okla., refinery addn. $375,000.

Mass., Framingham — FACTORY — Angier Corp., Fountain St., sketches by L. Larsen, Statler Bldg., Boston, brick, steel factory addn. $40,000.

Minn., Spring Valley—PLANT—Evergreen Mines Co., Crosby, ore washing plant.

N. J., Orange—MANUFACTURING—Monroe Calculating Machine Co., 555 Mitchell St., plans by Epple & Kahrs, 17 Washington St., Newark, 4 story, bsmnt., 100x200 ft., brick, steel, windowless, machine mfg. bldg., Mitchell St. Over $40,000.

N. Y., Dunkirk—PLANT—Alco Products, Inc., E. N. Boswell, mgr., Dunkirk, plant addn. Roberts Rd. Over $40,000.

N. Y., Niagara Falls — PLANT — Shredded Wheat Co., Niagara Falls, food products plant addn., Erie Ave. Over $40,000.

O., Cleveland—FACTORY—B. & S. Screw Products Co., 1515 Cort Rd., plans by T. V. Nichols, 16825 Kinsman Rd., 1 story, 60x100 ft., concrete block and wood factory. $40,000.

O., Cleveland—SHOP—Black Boring & Machine Co., J. Myers, in charge, 4909 Luther Ave., plans by J. W. Thomas, 3868 Carnegie Ave., 1 story, 65x100 ft., brick, steel tool and die shop addn. $40,000.

Pa., Phila.—REFINERY—Atlantic Refining Co., 260 S. Broad St., gasoline refinery. Over $40,000.

Wis., Cudahy — FACTORY — Ladish Drop Forge Co., 5405 S. Packard Ave., soon lets contract foundations 1 story, 100x425 ft., steel storage shed addn., 1 story, 125x300 ft. forge shop addn. CD 4/22—ENR 4/24.

B. C., Vancouver—PLANT—Dominion Rustproofing Co. Ltd., 856 Beatty St., Vancouver, plant. $50,000.

N. B., Fredericton—BUS TERMINAL—SMT. Eastern Ltd., 7 Carleton St., bus terminal. $60,000.

Ont., Oshawa — SAW MILL, etc. — Valley Lumber Co. Ltd., Oshawa, saw mill, etc. $40,000

Ont., Toronto—PLANT—Aurora Fluorescent Products Ltd., c/o A. L. Wynston, 590 W. King St., electric and radio supplies, etc. mfg. plant. $40,000.

Ont., Toronto—PLANT—Breen Wire Products Ltd., c/o L. W. Mitchell, 330 Bay St., mfg. plant. $40,000.

Ont., Toronto—PLANT—Canadian Aviation Products, Ltd., c/o J. P. E. Brown, 24 W. King St., airplanes, parts, etc. mfg. plant. $40,000.

Ont., Toronto — PLANT — Cutting Tools, Ltd., c/o W. A. G. Kelley, 320 Bay St., plant. $40,000.

Ont., Toronto—PLANT—Hesco Products & Services, Ltd., c/o H. B. Beckett, 200 Bay St., machine tools, gages mfg. plant. $40,000.

Ont., Toronto—PLANT—Medicine Hat Potteries, Ltd., c/o J. H. Yuill, Medicine Hat, Alta., pottery mfg. plant. $40,000.

Que., Bourlamaque—MILL—Golden Manitou Mines, Ltd., 85 Spark St., Ottawa, Ont., 600 ton mill and bldgs. $75,000.

Que., Chicoutini — PLANT — La Brique Saguenay Ltd., Chicoutini brick and clay products mfg. plant. $40,000.

Que., Rimouski—PLANT—J. E. Goulet, Luceville, shoe mfg. plant. $40,000.

Que., Saint Georges—MILL—Matafedia Co. Ltd., Saint Georges, saw and pulp mill. $75,000.

BIDS ASKED

Bids Asked January 3

Ont., Elmira—FACTORY—J. C. Klaehn, 49 King St. E., Kitchener, 1 story, 40x70 ft., brick, steel factory addn. for Naugatuck Chemical Co., Elmira, W. Bruce, genl. mgr. CD 6/23.

Bids Asked

N. J., Newark—MACHINE SHOP—Worthington-Gamon Meter Co., 296 South St., 1 story, 60x70 ft., brick machine shop addn. J. D. King, 695 Ridge St., archt.

Pa., Franklin—FACTORY—Chicago Pneumatic Tool Co., Inc., 191 Howard St., 1 story, 130x534 ft., brick, steel, concrete assembly plant addn. $225,000. CD 12/9—ENR 12/11.

CONTRACTS AWARDED

Calif., Alameda—SHOP—Pacific Bridge Co., 333 Kearny St., San Francisco, shop, day labor. **$50,000.**

Calif., Los Angeles — SHOP — Owner, c/o A. C. Martin, archt., 233 Higgins Bldg., 1 story, brick, concrete shop, separate contracts. **$75,000.**

Calif., San Francisco — FACTORY — Kraft Cheese Co., 962 Battery St., 2 story, rein.-con. factory, to Cahill Bros., 206 Sansome St. **$97,775.**

Calif., San Jose — FACTORY, etc. — California Packing Corp., 101 California St., San Francisco, part 1 and 2 story factory and warehouse, to J. F. Tulloch, 3428 Ettie St., Oakland. **$270,000.** CD 10/24—ENR 10/30.

Calif., San Jose — WAREHOUSE — C. N. Swenson Co., 355 Stockton Ave., warehouse. Owner builds. **$45,000.**

Colo., Grand Junction—WAREHOUSE—Salt Lake Hardware Co., 105 N. 3 St. W., Salt Lake City, Utah, general contract 1 story, 67x80 ft. and 80x130 ft., brick, concrete wing addns. warehouse, to A. R. Allison, Grand Junction. Est. **$40,000.** Ware & McClenahan, Utah Sav. & Tr. Bldg., Salt Lake City, Utah, archts.

Conn., Greenwich — FACTORY — Electrolux Corp., Forest Ave., 1 story, 101x166 ft., brick, steel factory, Tomac Ave., to John L. Duge & Sons, 148 Bruce Park Ave. **$52,600.** CD 12/12—ENR 12/18.

Conn., Stamford — WAREHOUSE — John Ferro, Inc., 26 Chapel St., 1 story, 80x200 ft., brick, steel, concrete warehouse, Meadow St., separate contracts. **$45,000.** F. S. Massari, 200 Atlantic St., archt. CD 12/9—ENR 12/11.

Ia., Ottumwa—CANNING—John Morrell & Co., Ottumwa, canning bldg., meat packing plant, to Stark Building Co., 113 F St. N.W., Cedar Rapids. **$300,000.** Bids 10/21. CD 10/16—ENR 10/23.

La., New Orleans—FOOD PROCESSING—Wesson Oil & Snowdrift Co., Inc., Canal Bank Bldg., 3 story, food processing bldg., monolithic concrete, 1301 S. Jefferson Davis Parkway, to L. F. Favret, 937 Gravier St. **$205,194.** A. Perez, 510 Audubon Bldg., archt.

Md., Baltimore—BOTTLING PLANT—Coca Cola Bottling Co., West St. Exten., 2 story, 88x200 ft., brick bottling plant, to Carlson & Carlson, 19 School St. Est. **$60,000.**

Md., Baltimore—FACTORY—Crown Cork & Seal Co., Eastern Ave. and Kresson St., 1 story, 157x700 ft., brick, concrete, can factory, to Frantz Constr. Co., 10 W. Chase St. L. R. White Jr., 10 W. Chase St., archt.

Md., Essex (br. Baltimore)—MARKET—Essex Food Fair, c/o J. O. Chertkof, engr., 207 W. Franklin St., Baltimore, 1 story, 120x150 ft. food market, to Leimbach & Williams, 30 W. Biddle St., Baltimore. Est. **$75,000.**

Mass., Fitchburg—BAKERY—J. J. Padula, Water St., 2 story, 85x100 ft., brick bakery, to Romano Bros. Co., 97 Harvard St. Est. **$40,000.** CD 10/30—ENR 11/6.

Mass., Pittsfield—PLANT—General Electric Co., Morningside St., 1 story, 150x225 ft., steel, concrete Bldg. 14 addn., to Petricca Constr. Co., 534 West St. CD 9/17—ENR 9/25.

Mich., Detroit—MACHINE SH[illegible]—Gorham Tool Co., 14400 Woodrow Wilson [illegible]., 1 story, 70x122 ft., brick, steel, concr[illegible] machine shop, plain fdn., to Darin & Armstrong, Inc., 2041 Fenkell Ave. Est. **$60,000.** [illegible]obert Kahn & Associates, 345 New Center Bl[illegible] archts.

Mo., St. Louis—FACTORY, [illegible]—Gardner Pocket Book Mfg. Co., c/o P. [illegible]rdner, 1306 Pine St., 1 story, part bsmnt., [illegible]0x255 ft., brick factory and office, to H. J[illegible]ross, 1701 Wagoner Pl. CD 11/28—ENR 1[illegible]

Mo., St. Louis—SHOP, etc.—U[illegible]n Electric Co. of Missouri, 12 and Locust [illegible]., 2 story, 32 x 73 ft., brick, rein.-con., stone, [illegible]lass block, electric power sub-station, to V[illegible]on Higbee Constr. Co., 6504 Nashville Ave. [illegible]st. **$40,000** with equip.

N. J., Ridgefield—FACTORY—[illegible] G. Corp., 136 W. 52 St., New York, N. [illegible] 1 story, brick, steel factory, 11 acre tract, 321 Broad Ave., to Bonanno Constr. Co., 8[illegible]0 Tonnelle Ave., North Bergen.

N. J., Trenton—FACTORY—Wi[illegible]ner Mfg. Co., 623 Prospect St., 80 x 100 ft [illegible]actory, to Karno-Smith Co., Inc., Broad St[illegible] Station. **$40,000** incl. equip. J. H. Harvey, [illegible]8 W. State St., archt.

N. J., West Paterson (br. Little Falls)—RUBBER TESTING—J. Schmid, Inc., Jackson Lane, 2 story, 50x192 ft. rubber testing bldg., brick, concrete, Jackson Lane, to Wesy Bros. & Storms Co., 241 Lafayette St., Paterson. **$40,000.** J. K. Farrer, 738 E. 26 St., Paterson, archt. and engr.

O., Cleveland — FACTORY — Artisan Metal Wks., O. F. Maynard, pres., 11400 Madison Ave., 1 story, 44x103 ft., brick, steel factory, to Bolton-Pratt Constr. Co., 1276 W. 3 St. Est. **$40,000.** Bids 8/18, awarded 12/10. CD 8/4—ENR 8/21.

O., Cleveland—FACTORY—Eaton Mfg. Co., c/o E. C. Bradford, in charge, E. 65 St. and Central Ave., altering 1 story, 25x25 ft. factory, new fdns. for machinery, to Dunbar Co., 8201 Cedar Ave. Est. **$40,000.**

O., Cleveland — POWER PLANT — General Chemical Co., 40 Rector St., New York, N. Y., 1 story, rein.-con. power plant addn., alterations, to C. Schimmelman, 1173 Sylvania Ave. Est. **$40,000.**

O., Cleveland—FACTORY—Jack & Heintz Co., W. Jack, pres., Hanna Bldg., altering factory, E. 30 St. and Chester Ave., to J. F. Fyfe, 4500 Euclid Ave. Est. **$40,000.**

O., Cleveland—FACTORY—Yoder Co., H. Yoder, secy. and treas., 2147 W. 55 St., 1 story, 118x120 ft. factory and heat treating plant, to J. C. Fyfe, 4500 Euclid Ave. Est. **$40,000.** W. Hatch, Hippodrome Bldg., engr.

Pa., Carnegie — MANUFACTURING — Superior Steel Corp., W. P. Ewing, exec. vice pres. and J. W. Schultz, purch. agt., Carnegie, structural steel mrg. addn., Scott Twp., near here, to Pittsburgh Industrial Eng. Co., 3329 Butler St., Pittsburgh. Est. **$40,000.**

Tex., Del Rio—MILL—El Dorado Woolen Mills, Eldorado, mill, Purchase and Hire. **$90,000.** CD 11/21—ENR 11/27.

Tex., Houston—PLANT—Stokely Bros. & Co., Inc., 951 N. Meridian St., Indianapolis, Ind., and Harlingen, food canning and packing plant, force account. **$90,000.** CD 12/16—ENR 12/18.

Tex., Taylor — PLANT — Taylor Pecan Co., c/o W. C. Wofford, pres., Taylor, rebuilding plant, Purchase and Hire. **$45,000.** CD 12/16 ENR 12/18.

Tex., Waco — FACTORY — Owens-Illinois Glass Co., Tower Petroleum Bldg. Dallas, excavating, rein.-con. fdn. for glass factory, to Ace Foundation Co., 117 N. Lancaster St., Dallas, approx. **$86,000.** Roberts & Co., Inc., Bona Allen Bldg., Atlanta, Ga., archts. and engrs. Additional to CD 10/17—ENR 10/23, under CA.

B. C., Vancouver—PLANT—Dominion Rustproof Co., 856 Beatty St., Vancouver, plant bldg., to Armstrong & Monteith Constr. Co. Ltd., 1383 Hornby St. **$49,300.** CD 12/16—ENR 12/18.

Ont., Brantford — FACTORY — Brantford Coach & Body Ltd., 175 Pearl St., factory, Mohawk St., to Schultz Constr. Ltd., 45 Albion St. About **$95,000.** CD 12/16—ENR 12/18, under CA.

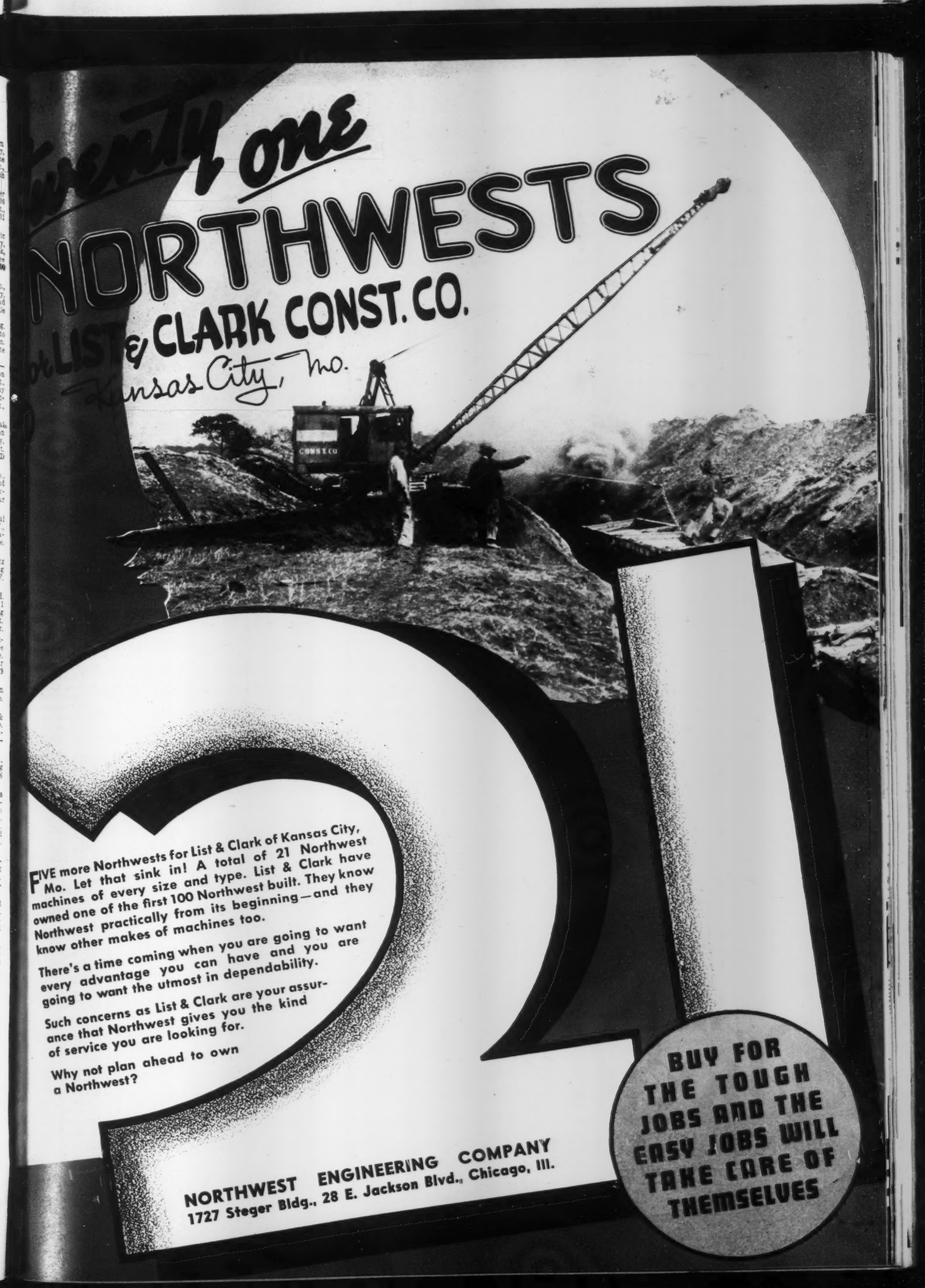
Ont., Hamilton—PLANT—Otis Fensom Elevator Co., Victoria Ave N., 1 story, 50x200 ft., brick plant addn., 1 story, brick, 40x200 ft. heat treating bldg., 1 story, 30x100 ft., brick, steel maintenance bldg., to W. H. Yates Constr. Co., 400 Wellington St. N. Est. **$125,000.** Hutton & Souter, 36 James St. S. archts. Awarded 12/16.

Ont., Ottawa — MILL — J. R. Booth, Ltd., Booth St., 3 story, 40x170 ft., concrete paper mill exten., to Foundation Co. of Canada, Ltd., 1538 Sherbrooke St. W., Montreal, Que., about **$45,000.**

Ont., Toronto—PLANT—Canada Packers Ltd., 7 Keele St., plant addn., to Mollenhauer Contg. Co., 156 St. Helens St. Est. **$40,000.** CD 11/27—ENR 12/11.

Que., Kippewa—MILL—J. R. Booth, Ltd., Booth St., Ottawa, Ont., saw mill, Tee Lake (Gordon Creek), day labor. About **$100,000.**

Que., Maisonneuve — BOILER SHOP — T. Pringle & Son, Ltd., 485 McGill St., Montreal, boiler shop and service bldg. at plant, for Canadian Vickers, Ltd., Maisonneuve, to Atlas Constr. Co., Ltd., 679 Belmont St., Montreal. About **$375,000.** Bids 11/27. CD 11/25—ENR 11/27, under Montreal.



FIVE more Northwests for List & Clark of Kansas City, Mo. Let that sink in! A total of 21 Northwest machines of every size and type. List & Clark have owned one of the first 100 Northwest built. They know Northwest practically from its beginning—and they know other makes of machines too.

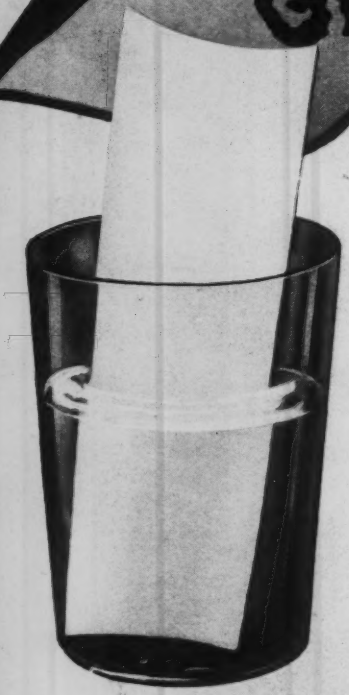
There's a time coming when you are going to want every advantage you can have and you are going to want the utmost in dependability.

Such concerns as List & Clark are your assurance that Northwest gives you the kind of service you are looking for.

Why not plan ahead to own a Northwest?

NORTHWEST ENGINEERING COMPANY
1727 Steger Bldg., 28 E. Jackson Blvd., Chicago, Ill.

BUY FOR THE TOUGH JOBS AND THE EASY JOBS WILL TAKE CARE OF THEMSELVES



This new tracing cloth defies moisture stains and erasure scars

This new tracing cloth won't show perspiration stains or water marks—*holds pencil smudges and erasure scars at a minimum.* Now you can have clean tracings, in pencil or ink, free from these untidy "ghosts" that reproduce on blueprints!

For PHOENIX is ghost-proofed by a remarkable new process that defies moisture and gives you an unusually durable working surface. You can use harder pencils with this improved cloth and get sharper lines with less tendency to smudge. Even 6H lines show clearly, and reproduce sharply! Erasing does not mar the drawing surface; erased areas take pencil smoothly—and ink without feathering. Its new white color and increased transparency give you excellent drawing contrast and produce strong blueprints.

Put PHOENIX through your own drawing board test. See your K&E dealer, or write for a generous working sample and an illustrated brochure.

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REG. U.S. PAT. OFF.
TRACING CLOTH
for pencil *and* ink

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KEUFFEL & ESSER CO.
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PHOENIX DEFIES MOISTURE GHOSTS . . .

Perspiration and water splashes on ordinary tracing cloth create "ghosts" which reproduce on blueprints. PHOENIX Tracing Cloth withstands actual immersion in water for fully 10 minutes at a time! *Perspiration and water marks will not stain it!*

PHOENIX LESSENS SMUDGE GHOSTS . . .

The new improved surface of PHOENIX Tracing Cloth permits you to use harder pencils (5H and 6H) and to get sharper lines with less tendency to smudge.

Result: Cleaner tracings and blueprints.

PHOENIX REDUCES ERASURE GHOSTS . . .

Ordinary tracing cloths become scarred when erased . . . erased spots produce ghosts on blueprints.

PHOENIX has a durable drawing surface that reduces working scars to a minimum.

TRAFFIC CONTROL

PLUS *Corrosion Control—with*

BYERS WROUGHT IRON CONDUIT

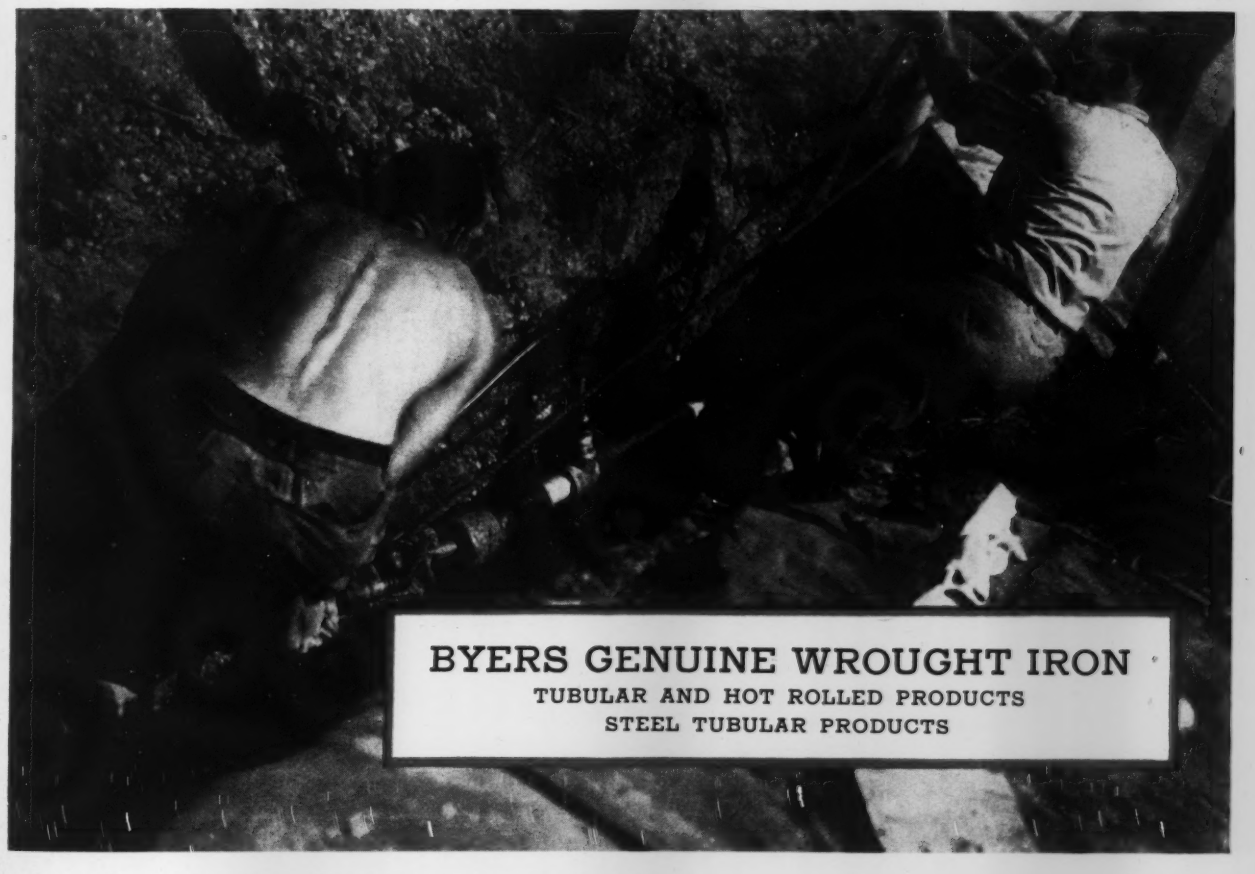
When it comes to underground electrical cable installations, the State Highway Department of New Jersey follows an "Ounce of Prevention" policy. The picture below shows Byers Wrought Iron Conduit being "jacked" under a main highway for a traffic control system at Manahawkin. For some years the Department has used wrought iron exclusively for underground installation of both power and lighting lines at highway intersections.

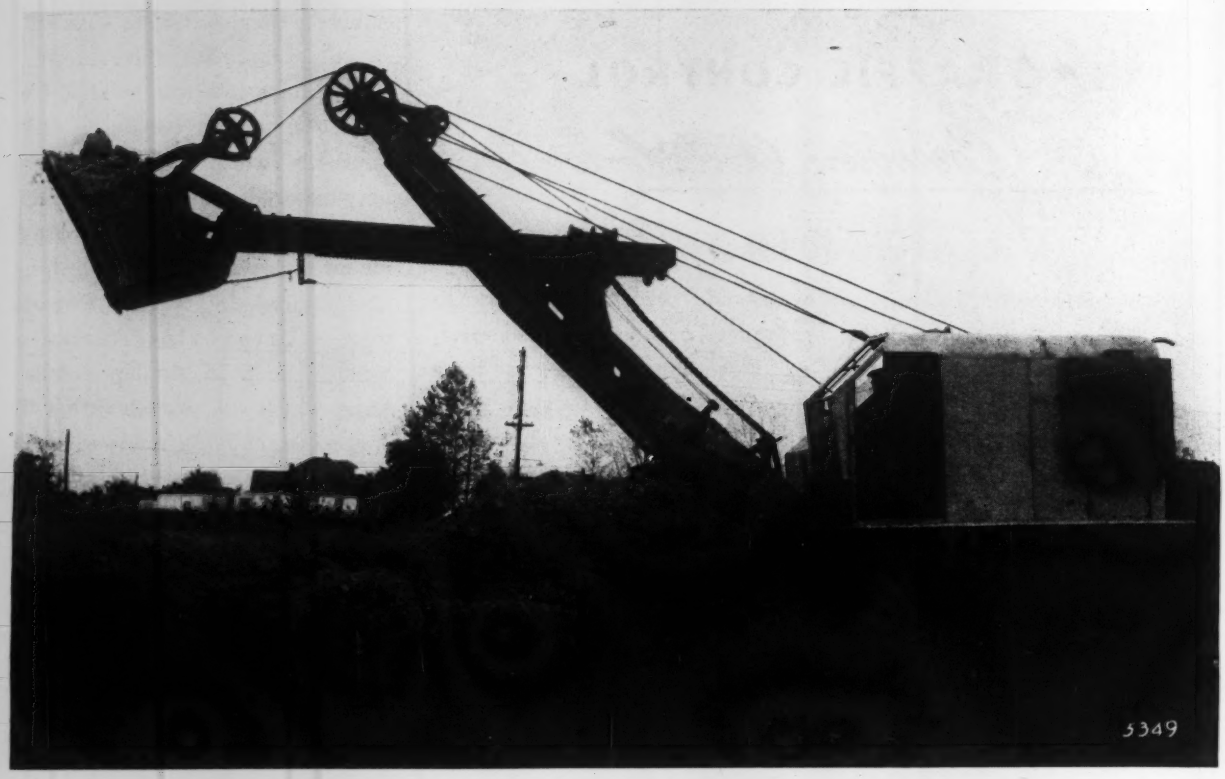
Engineers frequently have a need for a cable conduit that will withstand corrosion from the atmosphere, from soils, or from water, and more and more they are turning to wrought iron for such applications. Its durability has been proven in thousands of cases where identical destructive influences were involved. Wrought iron offers another important advantage, too, where physical stresses are present —as in bridges where vibration causes fatigue of ordinary metals, and in submarine lines where tides, currents and shifting bottoms cause punishing strains. Wrought iron combines ample strength with unusual resistance to fatigue.

If you are selecting conduit for some job where conditions are unusually severe, and where ordinary materials cannot be expected to give satisfactory service, by all means check up on wrought iron. Our Engineering Service Department will give you case histories of wrought iron in similar installations, which will provide you with a safe, dependable guide in making your own selections of material. Then, too, one of our representatives will be glad to show you our special report on, "Wrought Iron Cable Conduit."

A. M. Byers Co., Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Chicago, St. Louis, Houston, Seattle, San Francisco.

CORROSION COSTS YOU MORE THAN WROUGHT IRON





OSGOOD

is keeping pace with the needs of Contractors and Industry, in the development of the highest efficiency in excavating and materials handling machinery. Be sure to check on OSGOOD developments.

NEW! OSGOOD TYPE 70

Another new OSGOOD Air-Control Power Shovel and Crane is now proving itself on many jobs. New features make this machine, on either crawlers or pneumatic tired wheel mount, the best buy of the year. Even though our production schedule is now full—we would like to tell you about the 70—you surely will want one later.

The **GENERAL** EXCAVATOR CO.
Sizes: ⅜ - ½ - ⅝ - ¾
DIESEL - GAS - ELECTRIC
Associated with THE OSGOOD CO.

The **HERCULES** COMPANY
HERCULES *IRONEROLLERS*
6 to 12 Tons
Diesel or Gasoline
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Sizes:
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SHOVELS
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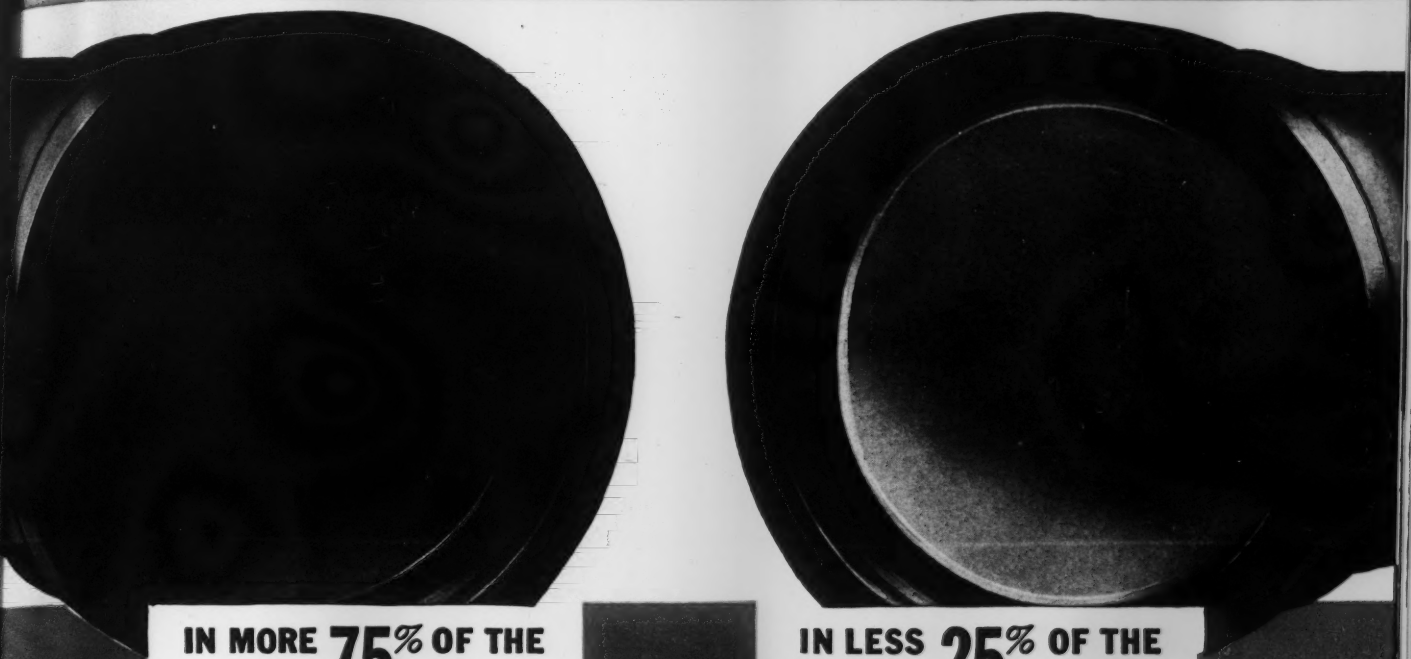
THE OSGOOD COMPANY, Marion, Ohio

100 YEARS of useful life as a structure



IN MORE THAN 75% OF THE U. S. A.
YOU GET BOTH
with standard tar-dipped cast iron pipe

IN LESS THAN 25% OF THE U. S. A.
TO GET BOTH
use lined* cast iron pipe

100 YEARS of high capacity as a carrier

WHERE TUBERCULATING WATERS MUST BE TRANSPORTED (LESS THAN 25% OF THE U.S.A.) USE LINED CAST IRON PIPE*

The areas of the United States where tuberculating waters materially affect the carrying capacity of pipe represent *less than one-quarter of the total area of the country*. If you are located within one of these areas, use *lined* cast iron pipe. You do *not* have to sacrifice the long life, low maintenance cost and salvage value of cast iron pipe in order to be assured of high carrying capacity throughout the life of the pipe you buy. The Cast Iron Pipe Research Association recommends *lined* cast iron pipe where tuberculating waters must be transported. Lined cast iron pipe is the only pipe that will have 100 years of useful life plus 100 years of high carrying capacity. Send for map which shows approximately 76% of the country where little or no tuberculation is to be expected. Lined cast iron pipe is made in sizes from 1¼ to 84 inches.

CAST IRON

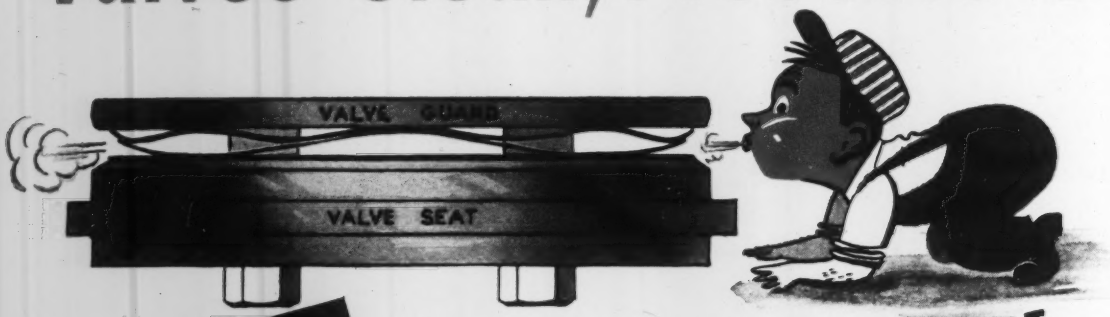
Various types of linings are available to meet various conditions and preferences of users

THE CAST IRON PIPE RESEARCH ASSOCIATION, THOMAS F. WOLFE, RESEARCH ENGINEER, 1015 PEOPLES GAS BUILDING, CHICAGO, ILLINOIS.

CAST IRON PIPE

PUBLIC TAX SAVER NO. 1

Valves Clean, Pressure UP



SULLIVAN "Dual-Cushion" valves securing variable spring tension by the use of wave-shaped springs and reaction plates. Valves of every design stay carbon-free, in compressors lubricated with Texaco.

CARBON JUST BLOWS AWAY

VALVES will stay clean longer and air pressures will stay up . . . regardless of the size or type of compressors you operate when you use *Texaco Alcaid, Algol or Ursa Oils.*

Using *Texaco Alcaid, Algol or Ursa Oils* the little carbon that may form will be *soft* and *fluffy* . . . will be carried away with the compressed air. Highly resistant not only to carbon formation, but also to gumming and sludging, these oils assure efficient valves, longer service between inspections and cleanings.

The outstanding performance that has made Texaco preferred in the fields listed in the panel has made it preferred on prominent construction jobs throughout the country.

These Texaco users enjoy many benefits that can also be yours. A Texaco Lubrication Engineer will gladly cooperate . . . just phone the nearest of more than 2300 Texaco distributing plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York, N. Y.

THEY PREFER TEXACO

★ More revenue airline miles in the U. S. are flown with Texaco than with any other brand.

★ More buses, more bus lines and more bus-miles are lubricated with Texaco than with any other brand.

★ More stationary Diesel horsepower in the U. S. is lubricated with Texaco than with any other brand.

★ More Diesel horsepower on streamlined trains in the U. S. is lubricated with Texaco than with all other brands combined.

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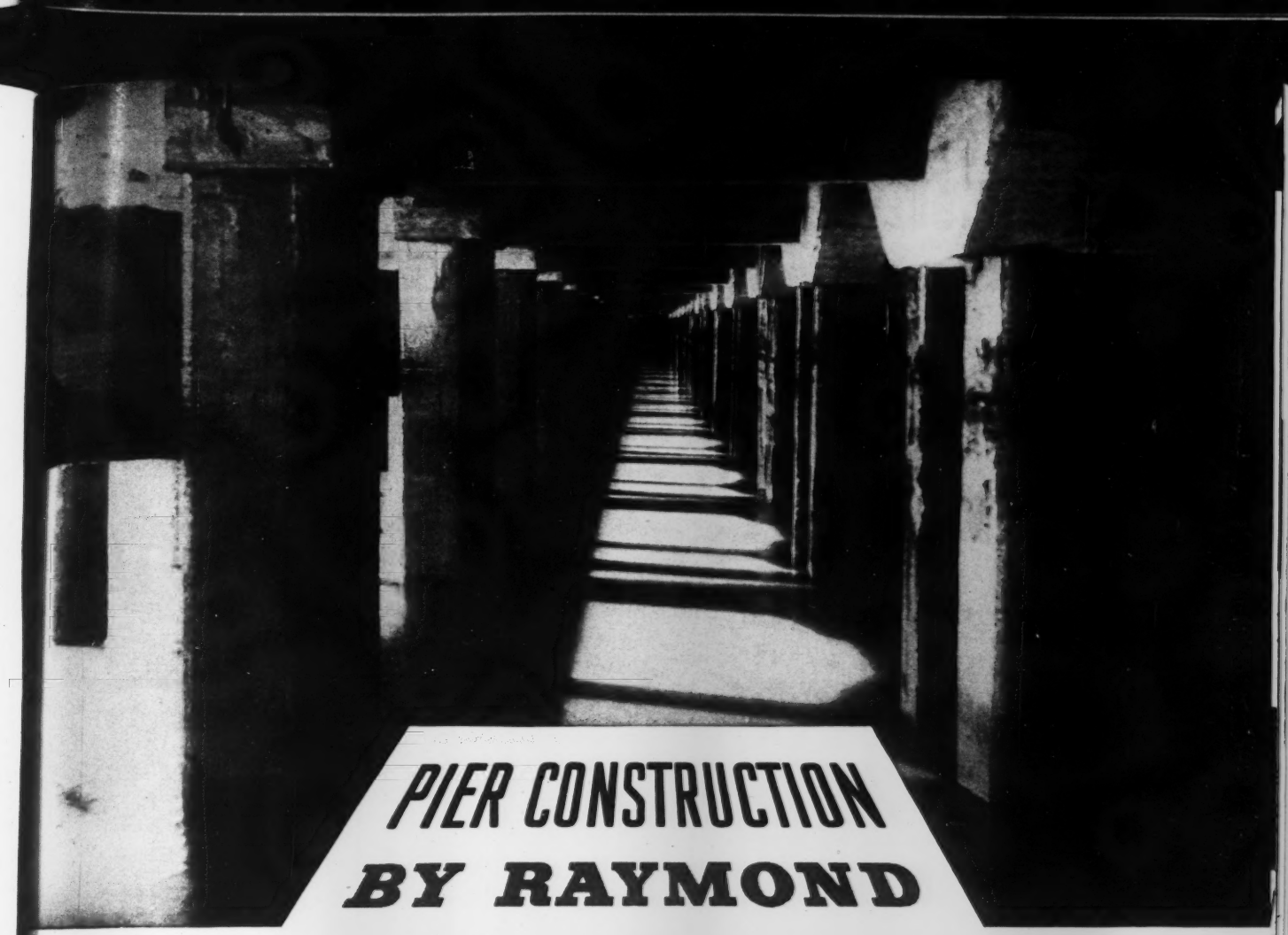
TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

RETURN METAL DRUMS PROMPTLY . . . thus helping to make present supply meet industry's needs and releasing metal for National Defense.



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Showing the use of Pre-cast Concrete Piles for sub-surface support

The range of the Raymond Company's activities extends into other fields than foundation work; for example, borings for soil investigation, and construction involving shore protection, ship building facilities and harbor and river improvements. In many of these projects Raymond's connection has been continuous from the stages of preliminary survey and reports, through the processes of planning and design, on to complete construction. The engineering and cost data thus accumulated over many years of successful operation in various parts of the world are obviously of great value in planning and estimating the cost of projects under consideration.

We would be glad to make this available to you.

44 YEARS OF SUCCESSFUL EXPERIENCE

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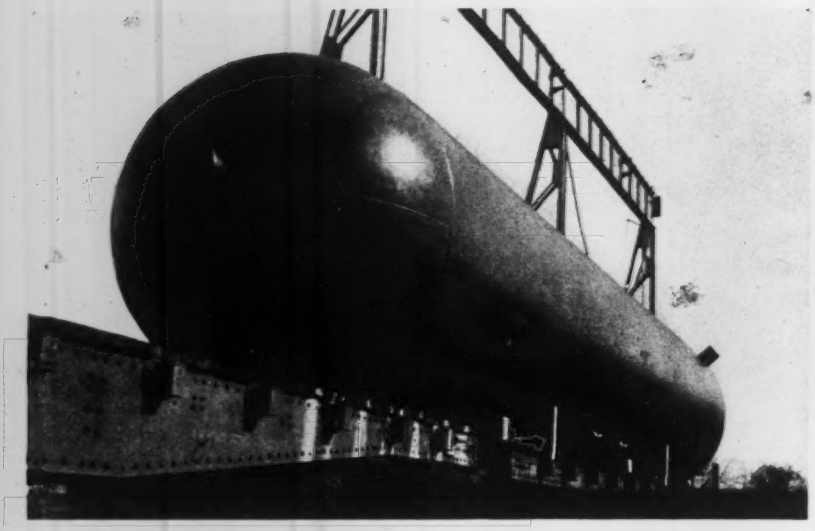
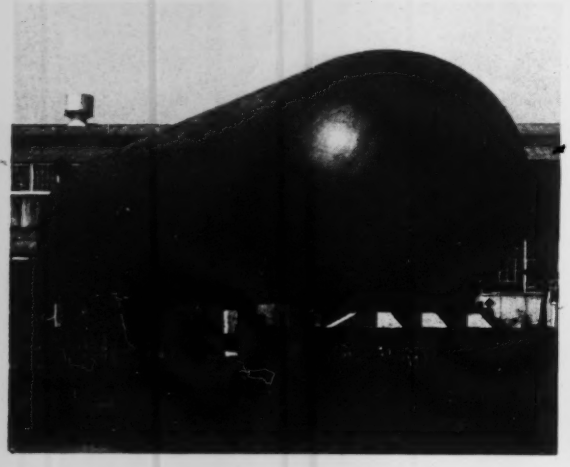
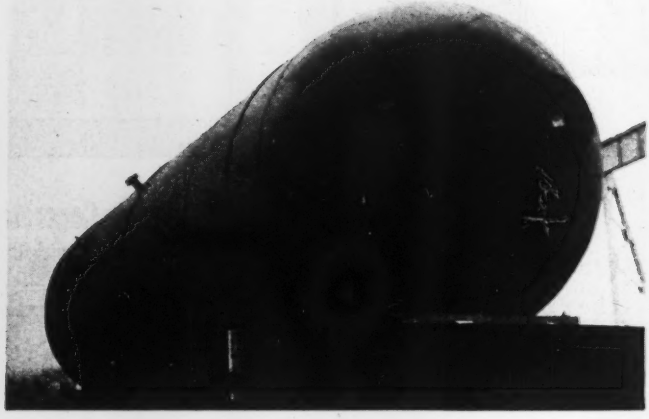
These BULLETS are labeled for defense industry plants



Above and left: 10½ ft. diam. by 49 ft. bullets fabricated from A 212 steel for 200 lbs. working pressure. Below: 24,000-gal. bullets for storing anhydrous ammonia under 200 lbs. per sq. in. pressure.





In the steel plate fabricating industry, pressure vessels with hemispherical ends are called bullets. Sometimes they are mounted in a horizontal position and called horizontal bullets, while others are supported vertically on short posts and referred to as vertical bullets.

And perhaps the term "bullet" isn't exactly a misnomer. Certainly they are used in connection with the "business end" of many a production line. You will find them storing volatile liquids and gases such as ammonia, oxygen and hydrocarbons, as well as for blending and manufacturing operations at chemical and other process plants.

We have facilities to x-ray and stress-relieve bullets in accordance with Paragraph U-68 of the A S M E Code at Birmingham. Vessels built in accordance with Paragraph U-69 of the A S M E Code or to other requirements are fabricated at all of our other plants. We also build field-erected Hortonspheres and Hortonspheroids when larger capacities are needed.

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Houston.....5609 Clinton Drive
Tulsa.....1617 Hunt Bldg.
Birmingham.....1520 North Fiftieth Street
Havana.....402 Edificio Abreu
Detroit.....1506 Lafayette Bldg.
San Francisco.....1020 Rialto Bldg.
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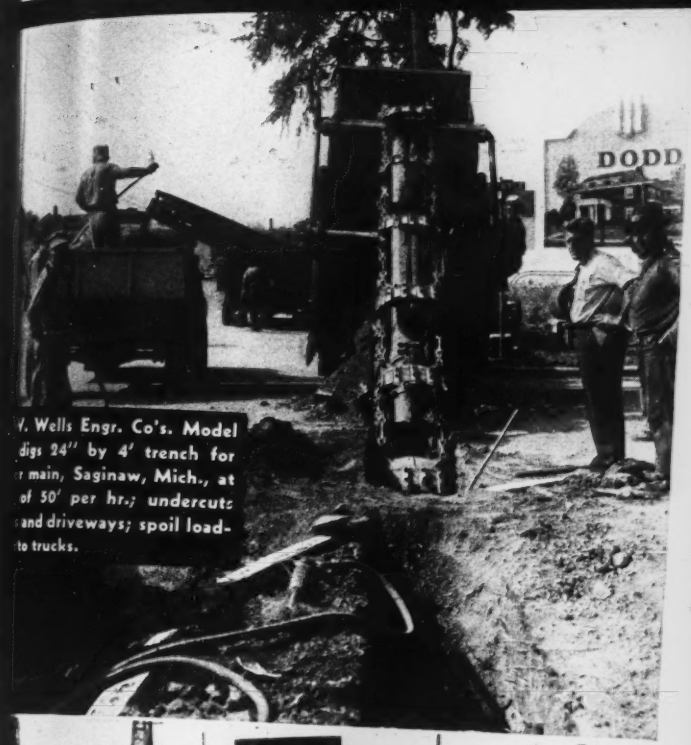
Plants at Chicago, Birmingham and Greenville, Pa. *In Canada:* Horton Steel Works, Limited, Fort Erie, Ont.

Buckeyes *Take It As It Comes!*



V. Wells Engr. Co's. Model digs 24" by 4' trench for r main, Saginaw, Mich., at of 50' per hr.; undercuts and driveways; spoil load- to trucks.

Contractors dig trench at the lowest possible cost with Buckeye Service Trenchers because they take any job as it comes — sand, clay, mud, gravel, or what have you. Big and rugged enough for long, gruelling service, they are nevertheless readily maneuvered.

The Models 160 and 120 shown have shiftable booms to left or right, for digging close to foundations, curbs and for getting around obstructions. And it's easy to cut a curve and hold to grade with a Buckeye. The urgency of today's trenching jobs require the speed only Buckeyes can give you.

There's a Buckeye Trencher for every class of work — 18 models in the line — chain-bucket and rotary wheel types — utility machines for trench 15" wide by 6' deep up to the heavy duty units for trench 12' wide by 24' deep.

BUCKEYE TRACTION DITCHER CO.
FINDLAY, OHIO

Model 120 digs trench up to 30" by 11½'. Long Beach, (Cal.) Water Dept. benefits by its ability to undercut existing crude oil and gas lines. Digs effectively forward or reverse.

Model 160 (unposed) digs big boulder out of sewer pipe trench at Washington, D. C. The 160 makes trench up to 36" wide by 15' deep.

Built by Buckeye ✓

Convertible Shovels

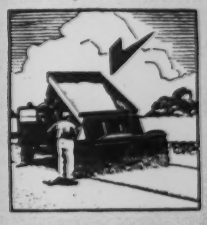
Trenchers

Tractor Equipment

R-B Finegraders

Road Wideners

Spreaders



Sky-scraping IN REVERSE WITH DRILLED-IN CAISSONS

No matter how far to bedrock, drilled-in caissons get there. No matter what soil is to be penetrated, what load carried, you can safely specify this modern high-speed, low-cost method.

ANY DEPTH

Our heavy steel shells have been driven as deep as 185 feet before seating in rock. But "as far as it takes" is the only limit.

ANY SOIL

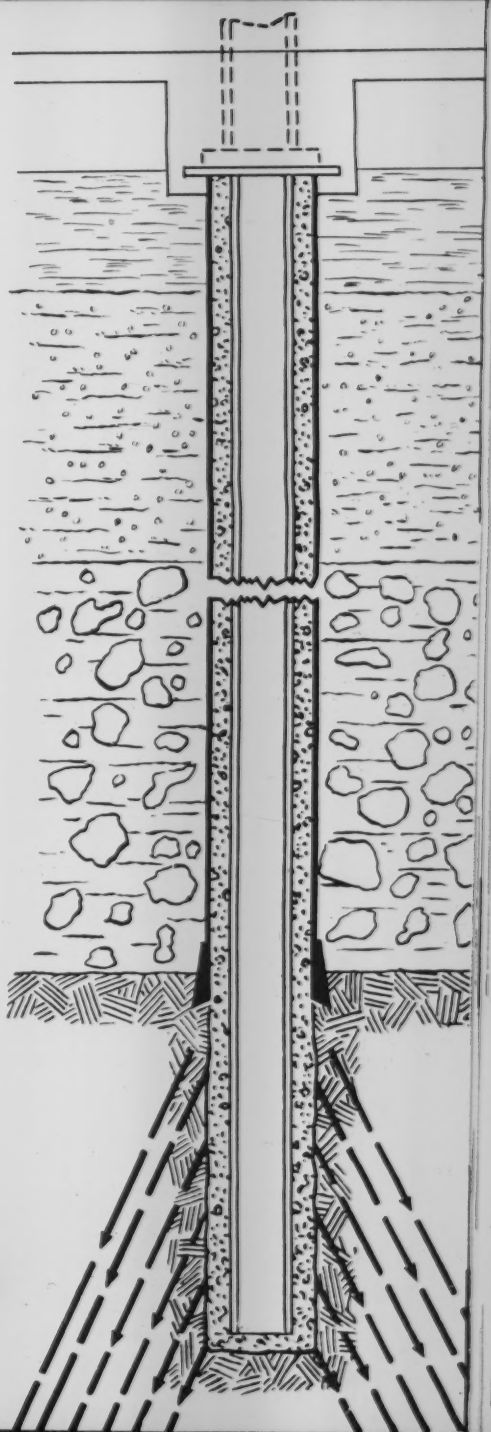
Our caissons have been carried to rock through every kind of material — fill, river silt, quicksand, peat, clay, sand, boulders as big as young houses, hardpan. None of them stymie our methods — not even poison gas.

Our "Sockets of Safety" — a unique feature found in no other foundation — have been churn-drilled into mica schist, slate, shale, granodiorite, quartz. The 4000-lb. star bits we use chew up anything.

ANY LOAD

Steel H-beams — for top-flight loads, the heaviest sections made — are lowered to bedrock at bottom of shaft. Concrete is poured, filling shell and socket, to transfer load by compression bond to rock through socket walls. We've carried as high as 1420 tons per 30-inch caisson, but if your load comes heavier — just say so.

Drilled-in caissons have proved to be the best solution for some of today's toughest foundation problems. Extra safety is incorporated in the design. Freedom from the usual caisson hazards to workmen is ensured by mechanical digging methods. Inch-by-inch test of rock quality is provided when drilling out the socket. And the entire process means outstanding economy in time and material.



For further information write

WESTERN FOUNDATION CO.
WESTERN CONCRETE PILE CORP.

NEW YORK OFFICE: 52 VANDERBILT AVE.
CHICAGO OFFICE: 308 W. WASHINGTON ST.

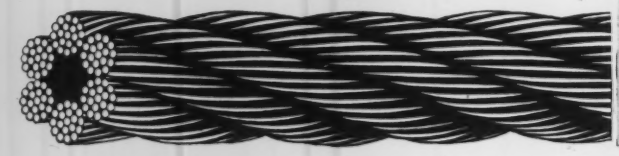
SOCKET OF SAFETY

4=1

IN ROPE MATHEMATICS!

Only one wire rope manufacturer makes available to you all four advantages listed to the left—and that is Roebling.

The "Roebling 4" are the reasons why Roebling "Blue Center" Steel Wire Rope gives unexcelled service. You can use this rope with complete confidence that it will assure you of lowest possible *general average* rope operating cost.



ROEBLING

"Blue Center" STEEL

WIRE ROPE

PREFORMED AND NON-PREFORMED

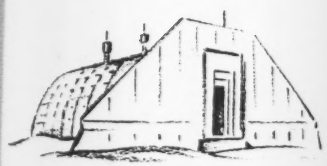
A CASE OF THE BIGGER—THE BETTER!

This is one of many Roebling stranding machines of various sizes. It makes possible the production of highly efficient, large diameter ropes, such as mammoth dredge ropes, possessing an exceptionally high degree of pliability.

Each of its 36 bobbins holds over half a ton of wire! Here is a typical example of the exceptional rope-making facilities available at Roebling—of the great lengths to which Roebling goes to engineer into every Roebling rope a maximum of suitability, safety and stamina.

JOHN A. ROEBLING'S SONS COMPANY TRENTON NEW JERSEY

Branches in Principal Cities Export Division: 19 Rector St., New York, N.Y., U.S.A. Cable Address: "Roebling's", New York



SPEED WITH SAVINGS

Technologic advance which assures savings on all concrete—savings and speed so vital to victory—now employed by American military men, traditionally as progressive in construction methods as in arms and tactics.

IN STEP WITH PROGRESS.....

CEMENT DISPERSION

CEMENT DISPERSION

POZZOLITH

TECHNOLOGIC ADVANCE THAT DELIVERS

NEEDED SPEED—NEEDED SAVINGS—for VICTORY

[Excerpt from Report of the Contractors' Concrete Engineer on a U. S. Defense Project of 1st Magnitude]

Re: COSTS

"The following Comparison of Cost uses two mixes whose general working qualities are very similar, with a slight superiority in favor of Mix B, with Pozzolith added.

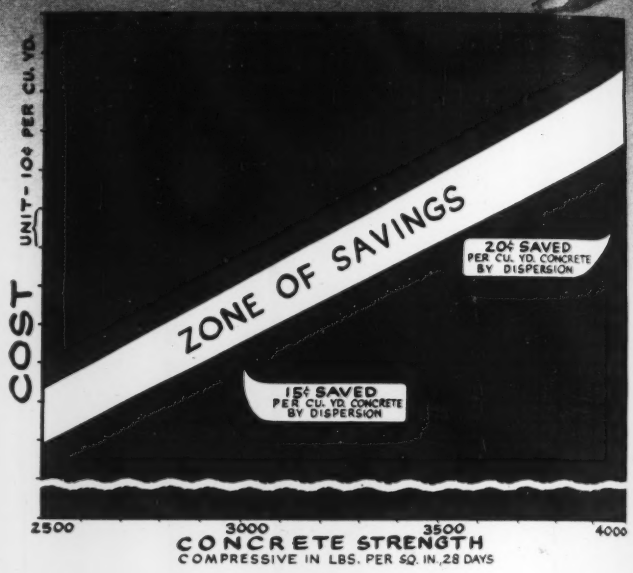
A — No Admix - $5.775 per cu. yd.
B — With Pozzolith - 5.248 per cu. yd.
Saving per cu. yd. - $ .527

A saving in finishing time developed, particularly when using Mix "A" with Pozzolith added . . . . :

Unit saving, Mix "A" plus Pozzolith - - 29c per sq. yd. - - $1.75 per cu. yd.

Re: QUALITY

The amount of water used in the regular mix is reduced on the average of 5.7 gallons per cu. yd. with the use of Pozzolith. This reduced water content increases density and watertightness. In spite of the lowered water content noted above, plasticity is greatly increased making finishing easier and quicker. Bleeding is entirely eliminated when Mix "A" is used with Pozzolith and almost entirely so using Mix "B". Shrinkage is also reduced" . . .



Based on cement at 50c per sack.

Whatever Your Concrete Requirements are — whether they be for low strength or high strength, for a 5-year shed or a 50-year Dry Dock — **You Produce Them at Lower First Cost** with concrete designed and built with **Pozzolith.** In addition, subsequent costs for **Maintenance** are lower.

1. **Concrete of Given Strength is produced at Lower Cost.**
2. **Stronger and More Durable Concrete is produced at a Given Cost.**

Send for Research Paper No. 36 "Economics of Cement Dispersion" and complete facts on Pozzolith.

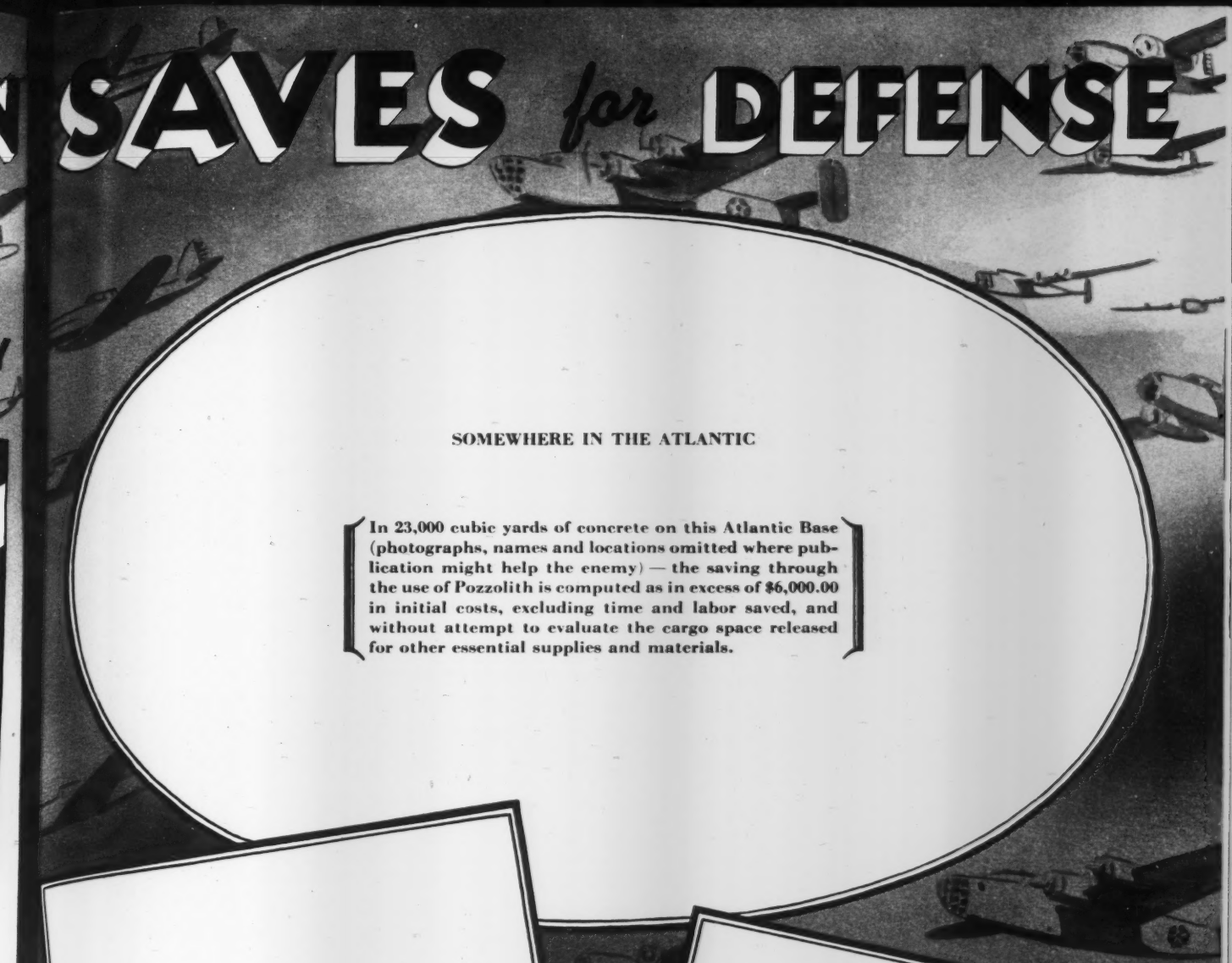
THE MASTER BUILDERS COMPANY.

CLEVELAND, OHIO **TORONTO, CANADA**

MASTERBUILT PRODUCTS

MASTER

SAVES for DEFENSE



SOMEWHERE IN THE ATLANTIC

In 23,000 cubic yards of concrete on this Atlantic Base (photographs, names and locations omitted where publication might help the enemy) — the saving through the use of Pozzolith is computed as in excess of $6,000.00 in initial costs, excluding time and labor saved, and without attempt to evaluate the cargo space released for other essential supplies and materials.

SOMEWHERE IN U. S. A.

30,000 cubic yards of concrete in this Ordnance Plant placed with Pozzolith at a saving in materials costs of 19c per yard — Saving $5,700.00 (Not including Labor Savings acknowledged but not segregated.)

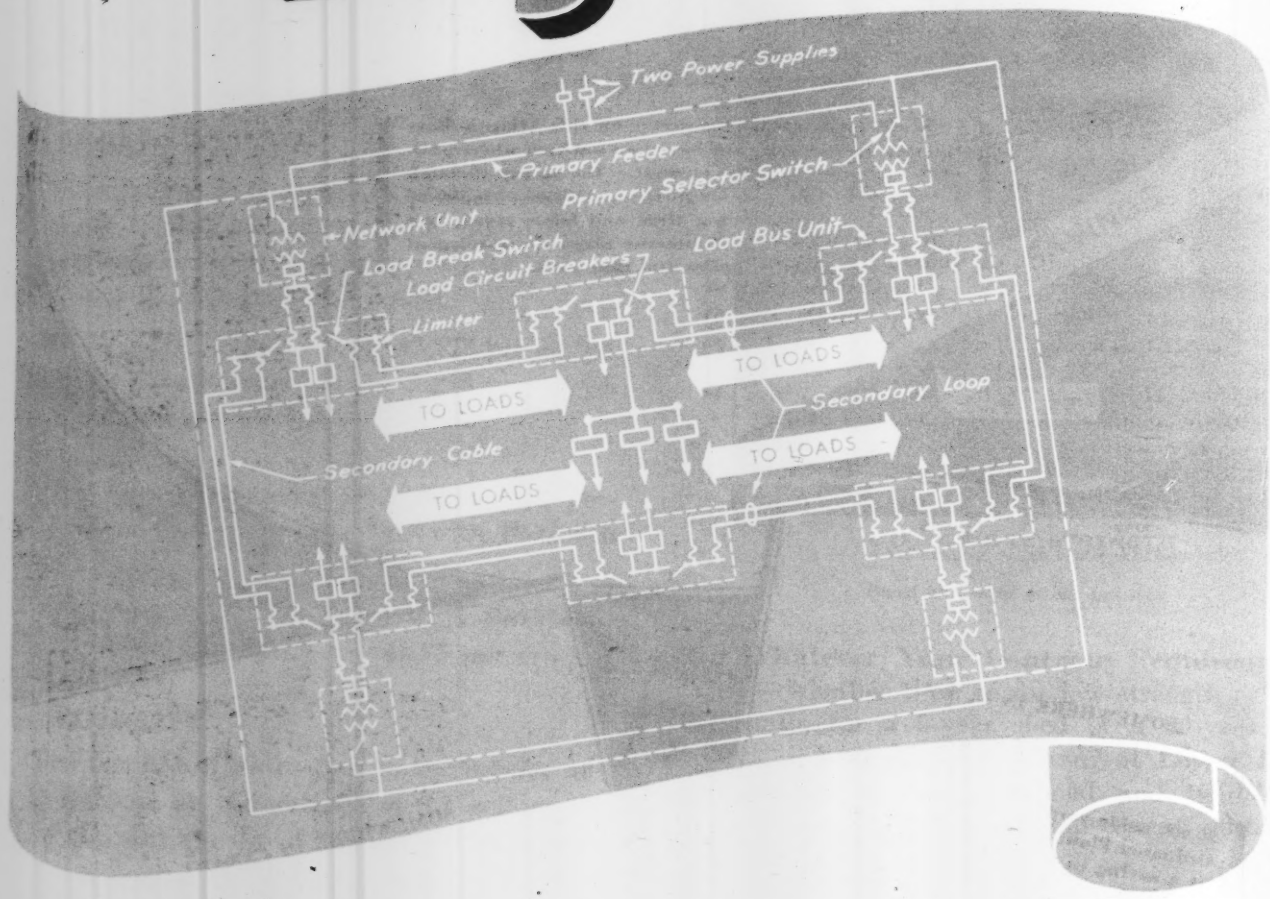
SOMEWHERE IN CANADA

On this large Defense Plant 100,000 cubic yards of concrete placed with Pozzolith. Concrete of the same quality, placed under like conditions and at the same speed, without Cement Dispersion would have cost $10,000.00 more.

BUILDERS

MASTERBUILT PRODUCTS

voltage regulation



HOW THE PLANT NETWORK SYSTEM IMPROVES VOLTAGE REGULATION

Voltage regulation is better and more uniform with the Plant Network System. Power is carried in at high voltage as close to the load as possible by locating network units at the centers of load areas. Secondary feeders to individual loads are kept at minimum length and network units are tied together with a secondary loop to provide at least a two-way feed to all load buses.

Control equipment is greatly simplified because improved regulation makes possible across-the-line starting of large motors.

WESTINGHOUSE

Westinghouse

BETTER and MORE UNIFORM with Plant Network System

Careful engineering, wise factory planning and accurate machine design are not enough to keep production rolling. It takes power, dependable power, to deliver the results of skillfully engineered production lines.

For maximum results, power must be uniform throughout the plant. Until now, however, this has been difficult to obtain. With the conventional radial system of power distribution, voltage regulation is not uniform because of the unavoidable voltage drop in long low-voltage feeder lines. Now, with the Plant Network System, this trouble can be avoided.

Under this system, voltage regulation is approximately the same at all points in the plant. Power is carried in at high voltage as close to the load as possible by locating network units at the centers of load areas. This keeps secondary feeders to individual loads at minimum length.

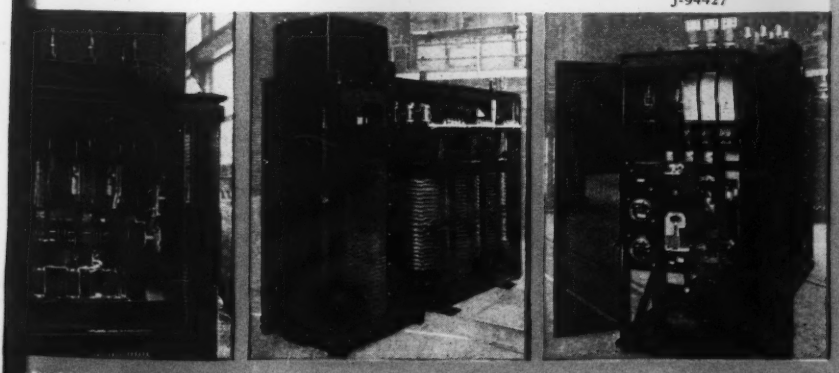
But better and more uniform voltage regulation is only one of the Network System's advantages. It provides far greater reliability and protects against sabotage. A failure in any primary feeder or secondary loop is automatically isolated with no interruption in power. Service can not be interrupted as a result of a single fault at any point within the plant.

Other important advantages include the ability to shift loads without shutting off the power and the ease with which the Network System can be extended.

Complete information on the Westinghouse Plant Network System should be in your files. This system should be seriously considered for every new plant or plant addition.

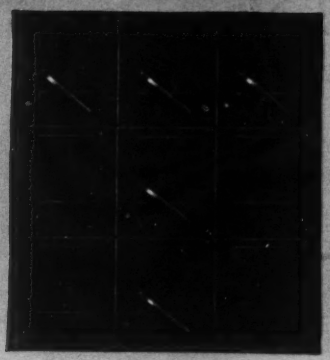
Write today for the Westinghouse book on plant distribution systems, B-2306. Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania.

J-94427



RY SELECTOR SWITCH NETWORK TRANSFORMER NETWORK PROTECTOR

ALL NETWORK EQUIPMENT IN TWO COMPACT UNITS



NETWORK LOAD BUS UNIT

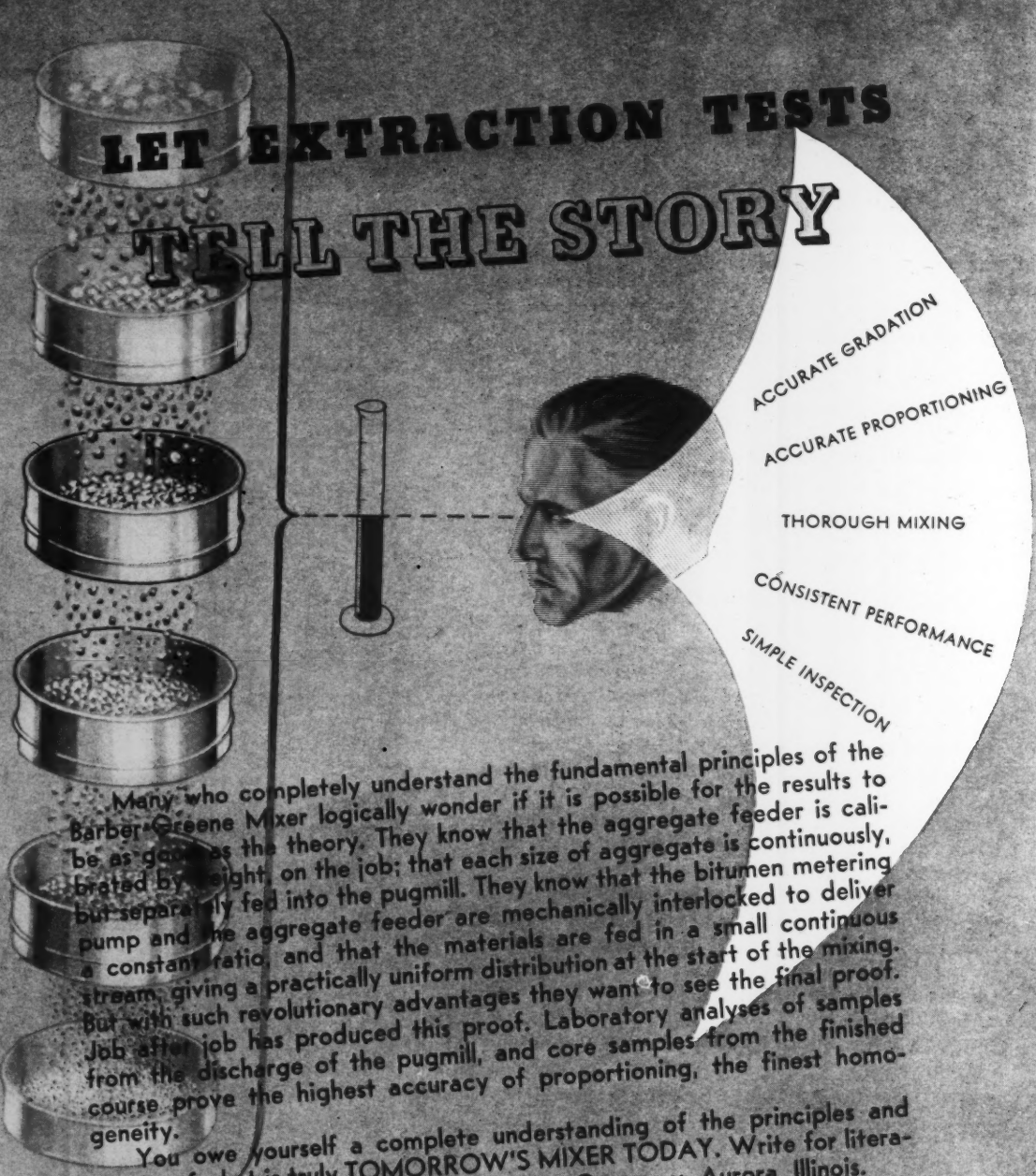
The Westinghouse Network Load Bus Unit provides limiters for fault protection for the secondary loop cables and air breakers for the load circuits. Load break switches permit isolating the limiters for repair or maintenance.

AIR-COOLED NETWORK UNIT

This compact unit made up of Double-Throw Primary Selector Switch, Air-Cooled Transformer and Network Protector shown at left, saves space and simplifies installation and eliminates fire hazards.

PLANT NETWORK SYSTEM

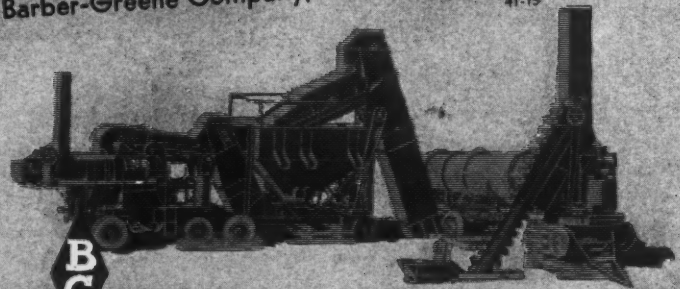
LET EXTRACTION TESTS TELL THE STORY



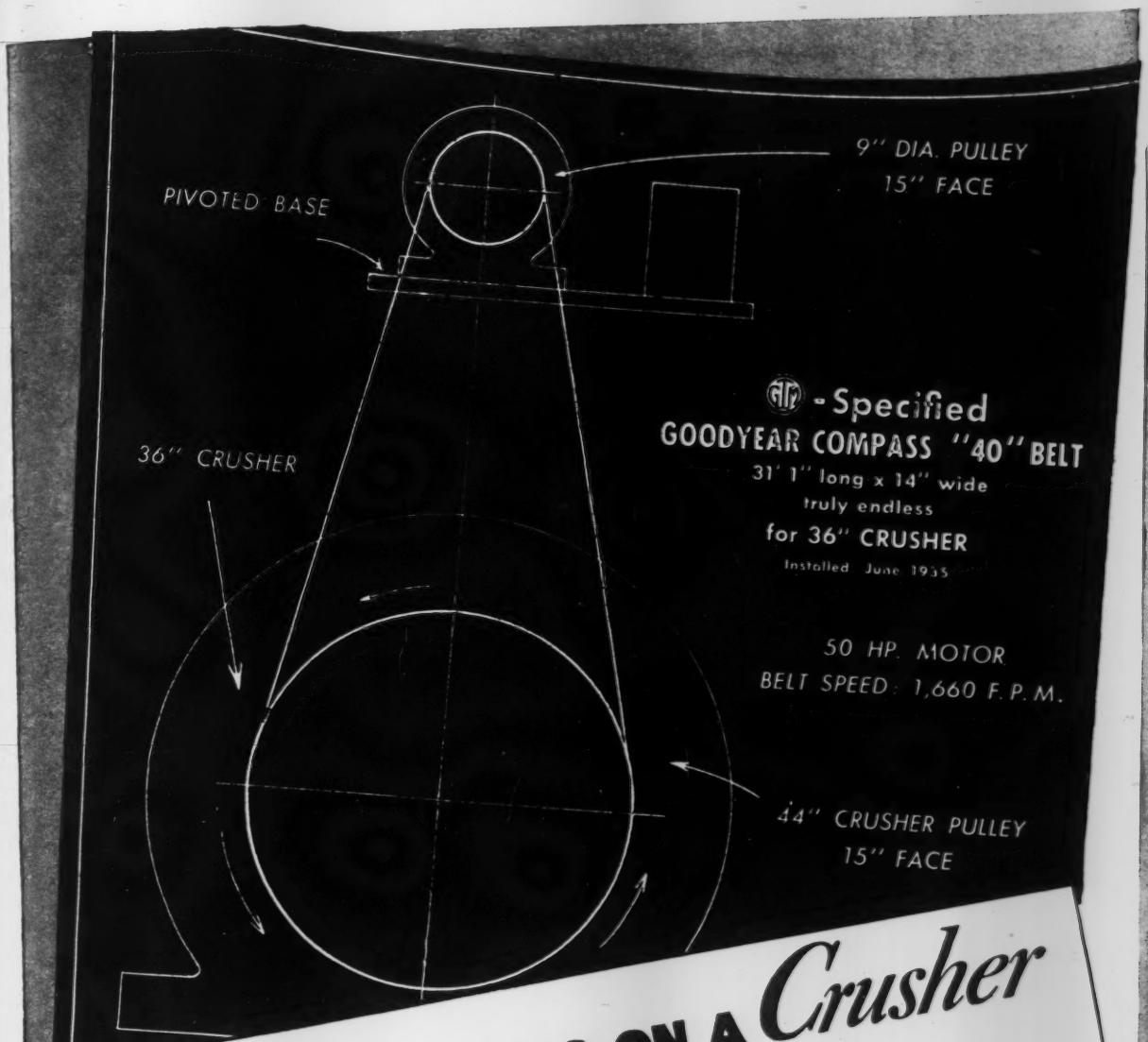
Many who completely understand the fundamental principles of the Barber-Greene Mixer logically wonder if it is possible for the results to be as good as the theory. They know that the aggregate feeder is calibrated by weight on the job; that each size of aggregate is continuously, but separately fed into the pugmill. They know that the bitumen metering pump and the aggregate feeder are mechanically interlocked to deliver a constant ratio, and that the materials are fed in a small continuous stream, giving a practically uniform distribution at the start of the mixing. But with such revolutionary advantages they want to see the final proof. Job after job has produced this proof. Laboratory analyses of samples from the discharge of the pugmill, and core samples from the finished course prove the highest accuracy of proportioning, the finest homogeneity.

You owe yourself a complete understanding of the principles and *results* of what is truly TOMORROW'S MIXER TODAY. Write for literature, there is no obligation. Barber-Greene Company, Aurora, Illinois.

41-15



BARBER GREENE



NEARLY SIX YEARS ON A *Crusher*

. . . and coming up for more!

WE don't have to tell you that a crusher drive is tough. So when a 36" machine was installed by a West Coast sand and gravel company, they wanted belting that could stand the gaff.

As usual, conditions were not ideal. There was a high starting load, along with an alternate wet and *dry* condition—all of which figure to give any belt a beating. Upon recommendation of the G.T.M.—Goodyear Technical Man—the company installed a pivoted motor base equipped with a truly endless Goodyear COMPASS "40."

That was nearly six years ago. Since that time the belt has not required a moment's attention for repair or maintenance. There has been practically no stretch. And today it is still giving A-1 service.

If you'd like that kind of service on your belt-killing drives, the G.T.M. is the man to see. To bring him, write Goodyear, Akron, Ohio, or Los Angeles, California—or phone the nearest Goodyear Mechanical Rubber Goods Distributor.

THE GREATEST NAME IN RUBBER
GOODYEAR

Compass—T. M. The Goodyear Tire & Rubber Company

Left: Cross section of a Bethlehem-Dardelet Rivet-Bolt showing the ribbed grip section and the self-locking threads. *Above:* Bethlehem-Dardelet Rivet-Bolts being installed on a defense job.

RAPID SUBSTRUCTURE CONSTRUCTION WITH BETHLEHEM H-BEARING PILES—Many of the foundations, bridge-bents and piers needed for defense projects can be designed and constructed rapidly at low cost with Bethlehem H-Bearing piles.

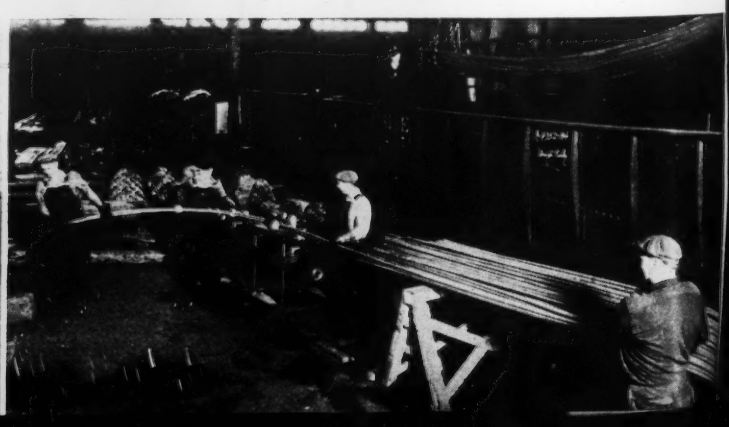
The final cost of the steel compares favorably with any other suitable piling material. The driving time is less than that needed for other types of construction.

Its most important feature is its great strength and bearing capacity—ample for the support of nearly any kind of structure. Bethlehem H-Bearing piles are rolled in sections ranging from 8 in. to 14 in. and can be spliced for any length.

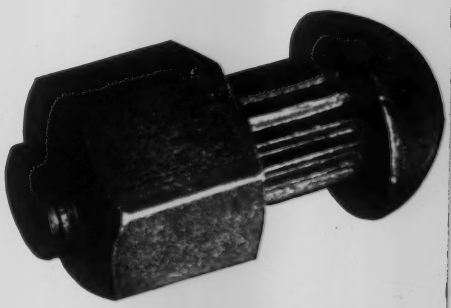
A FABRICATING SERVICE FOR REINFORCING STEEL—Few contractors are equipped to fabricate economically the reinforcing steel needed for today's emergency construction jobs. Bethlehem is equipped to do this work rapidly and at low cost. As a result, contractors all around the country are taking advantage of this time-saving service.

In addition to supplying a full line of reinforcing steel, Bethlehem's 15 warehouses can bend, cut and completely fabricate it to specifications. The steel is shipped to the contract location ready for instant installation.

Further service is assured by more than 100 dealers who stock Bethlehem Reinforcing Steel and accessories.



Fast field connections made easy with BETHLEHEM RIVET-BOLTS



Structural field connections handle fast and hold fast when Bethlehem-Dardelet Rivet-Bolts are used.

A Dardelet handles fast on the job because it can be driven home with 3 to 8 blows of a maul and can be locked with a few twists of the nut. No compressed air or forge is necessary. As many as 19 Dardelets can be installed per man-hour.

A Dardelet Rivet-Bolt holds fast permanently because its grip section is ribbed, its outside diameter is slightly greater than the hole into which it is driven. Furthermore the unique Dardelet thread locks the nut fast to the bolt when wrench-pressure is applied.

These rivet-bolts are made with buttonhead, countersunk and special heads. The nuts are counterbored to allow for any variation in thickness of the steel members.

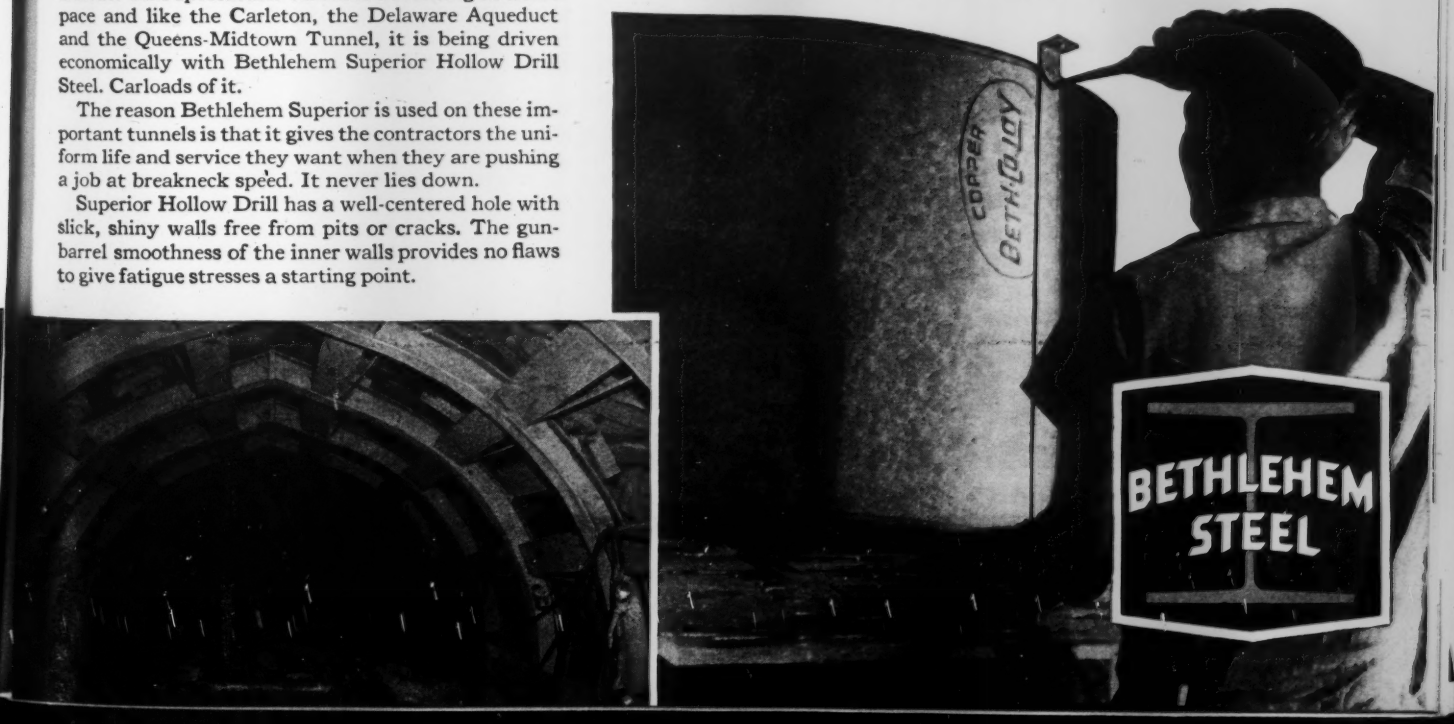
DRIVING A 13-MILE TUNNEL THROUGH COLORADO GRANITE The Colorado-Big-Thompson tunnel is being driven through 13 miles of granite to carry water from Grand Lake to farm land on the other side of the Continental Divide. This spectacular tunnel is advancing at a fast pace and like the Carleton, the Delaware Aqueduct and the Queens-Midtown Tunnel, it is being driven economically with Bethlehem Superior Hollow Drill Steel. Carloads of it.

The reason Bethlehem Superior is used on these important tunnels is that it gives the contractors the uniform life and service they want when they are pushing a job at breakneck speed. It never lies down.

Superior Hollow Drill has a well-centered hole with slick, shiny walls free from pits or cracks. The gun-barrel smoothness of the inner walls provides no flaws to give fatigue stresses a starting point.

CARRYING GOOD WEATHER INTO BLACKOUT PLANTS—With scores of windowless industrial plants now being constructed, man-made weather must be supplied at all times through rust-resistant duct work.

Bethlehem is furnishing tons of Beth-Cu-Loy copper-bearing steel sheets for this purpose. These sheets have .20 to .30 copper content—the amount required for maximum rust-resistance. Sheets of this composition last more than twice as long as ordinary galvanized steel sheets according to tests run in various localities by the American Society for Testing Materials.



It's the Oboe-Player who sounds the "A" for the Symphony Orchestra

. . . and on excavation jobs, it's blasting that gives the cue for efficient action

SHOVELS, trucks, bulldozers, rollers, and crushers can do their best work only when blasting leads the way.

Good blasting makes excavating equipment sing a profit-song that's music to the contractor's ears—

Shovels work fast, handle more yards.
Trucks move and load easily.
Bulldozers spread fast.
Rollers pack evenly.
Crushers run smoothly.
Secondary blasting is reduced.

Good blasting is no mystery. It simply means using the right grade of explosive in the right way. This often calls for the help of specialists—Atlas Technical Sales Representatives. They can help you choose the right grade for each type of blasting, and can show you how to use it to your advantage. Call them in for consultation.

ATLAS EXPLOSIVES
"Everything for Blasting"

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington, Del. • Offices in principal cities • Cable Address—Atpowco

Let . . . "Hercules" (RED STRAND) Wire Rope Help You *Speed Up Production*

REG. U.S. PAT. OFF.

To maintain vital production schedules, it is highly important to use the kind of equipment that will give long and trouble-free service . . . *consistently*.

When it comes to wire rope, you can depend on "HERCULES" (Red-Strand). Proof of this is the fact that for over a period of 55 years it has been demonstrating its ability to meet the requirements of peacetime progress, as well as the demands of great emergencies. It has been able to do so because of the sound fundamental principles that have always governed its manufacture.

And this, too, is important. The same qualities and principles that make "HERCULES" (Red-Strand) Wire Rope so long lasting . . . so dependable, also make for greater economy.

In order to be suitable for all conditions, "HERCULES" (Red-Strand) Wire Rope is made in a wide range of both Round Strand and Flattened Strand constructions — all of which can be furnished either Standard or Preformed

Leschen Rope is distributed from over 200 different points throughout the United States, which makes for quicker deliveries. Ask us for the name and location of our Distributor in your locality.

MADE ONLY BY

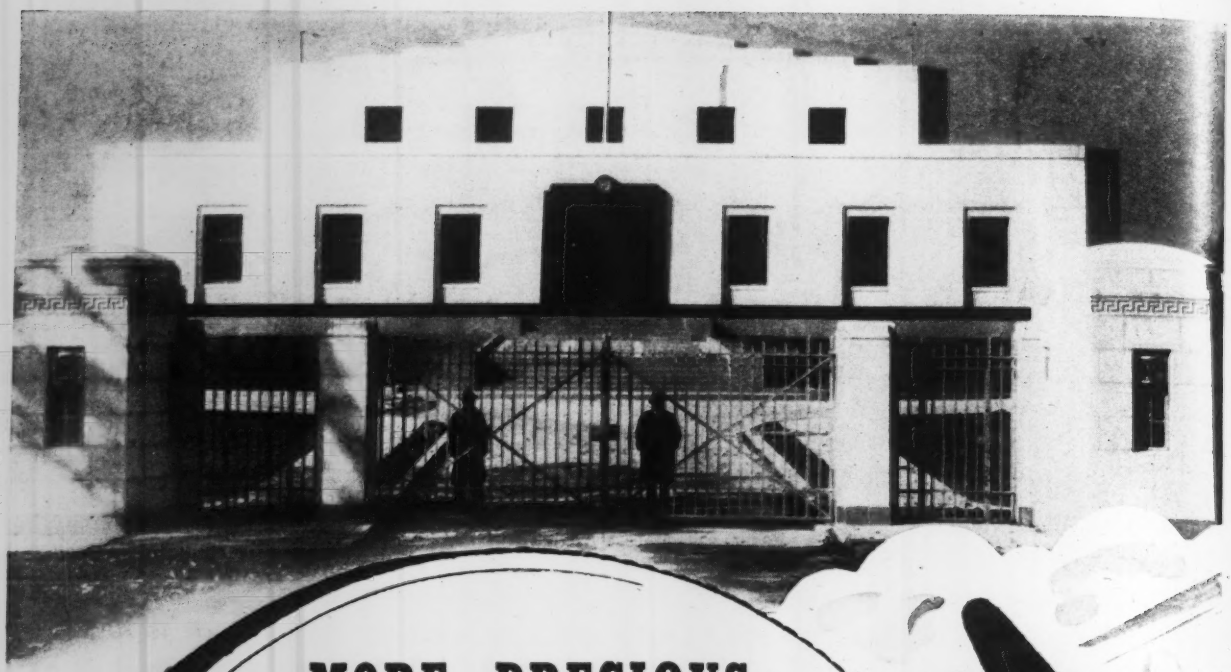
A. LESCHEN & SONS ROPE CO.

WIRE ROPE MAKERS — ESTABLISHED 1857

5909 KENNERLY AVENUE — ST. LOUIS, MISSOURI, U. S. A.

NEW YORK . . . 90 West Street
CHICAGO . . 810 W. Washington Blvd.
DENVER . . . 1554 Wazee Street

SAN FRANCISCO . . 520 Fourth Street
PORTLAND . . 914 N. W. 14th Avenue
SEATTLE . . 3410 First Avenue South



MORE PRECIOUS THAN SILVER OR GOLD

Less than a thousand years ago, steel was a precious metal. Kings and emperors gave for fine Damascus blades, more than their weight in gold.

In the world conflict today, steel is the precious metal that protects America. While a large part of the earth's gold lies buried in the Kentucky hills, steel in thousands of shops is being fashioned into weapons and equipment of war for the preservation of our way of life.

Defense is first with every thinking American. So every customer will approve of the fact that a steadily increasing part of Youngstown's output of finished and semi-finished steel is going for defense purposes. At the same time, we are delivering every ton we can for domestic use - for that, too, is vital to the preservation of the American way of life.

Youngstown products include Pipe and Tubular Products - Sheets - Plates - Conduit - Bars - Tin Plate - Rods - Wire - Nails - Tie Plates and Spikes

25-26D

QUALITY YOUNGSTOWN SERVICE

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yoloy Steels

General Offices - YOUNGSTOWN, OHIO

5 WAY PROTECTION

for marine structures with pressure-creosoted timber

This 4,000 foot Runway at Nueces Bay, Texas, is built of pressure-creosoted timber.

More and more, engineers are recognizing and using* pressure-treated wood as one of the "big three" in permanent structural materials. Its first-cost is low. It can be pre-framed. Pound for pound, its strength is comparable to ferrous materials. It has resilience that supplements this strength. It is unaffected by corrosion. It does not spall. It has high salvage value. And—of particular importance today—delivery can generally be made *quickly*.

As an example of its permanence . . . pressure-creosoted piling installed for 35 years was recently pulled and found in excellent condition, with no sign of depreciation. Your own experience will probably provide equally convincing examples.

On your next construction job, why not check on how pressure-treated wood can save time, money and trouble for you?

**Approximately 100,000 carloads in 1939*

Pressure Creosoting protects against:

1. MARINE BORERS **2.** DECAY
3. MECHANICAL WEAR
4. WEATHERING **5.** TERMITES

WOOD PRESERVING DIVISION
KOPPERS COMPANY
PITTSBURGH · PENNSYLVANIA

use **KOPPERS** *products*

Fill out and mail

KOPPERS COMPANY
7002 Koppers Bldg., Pittsburgh, Pa.
Please send me copies of these folders:

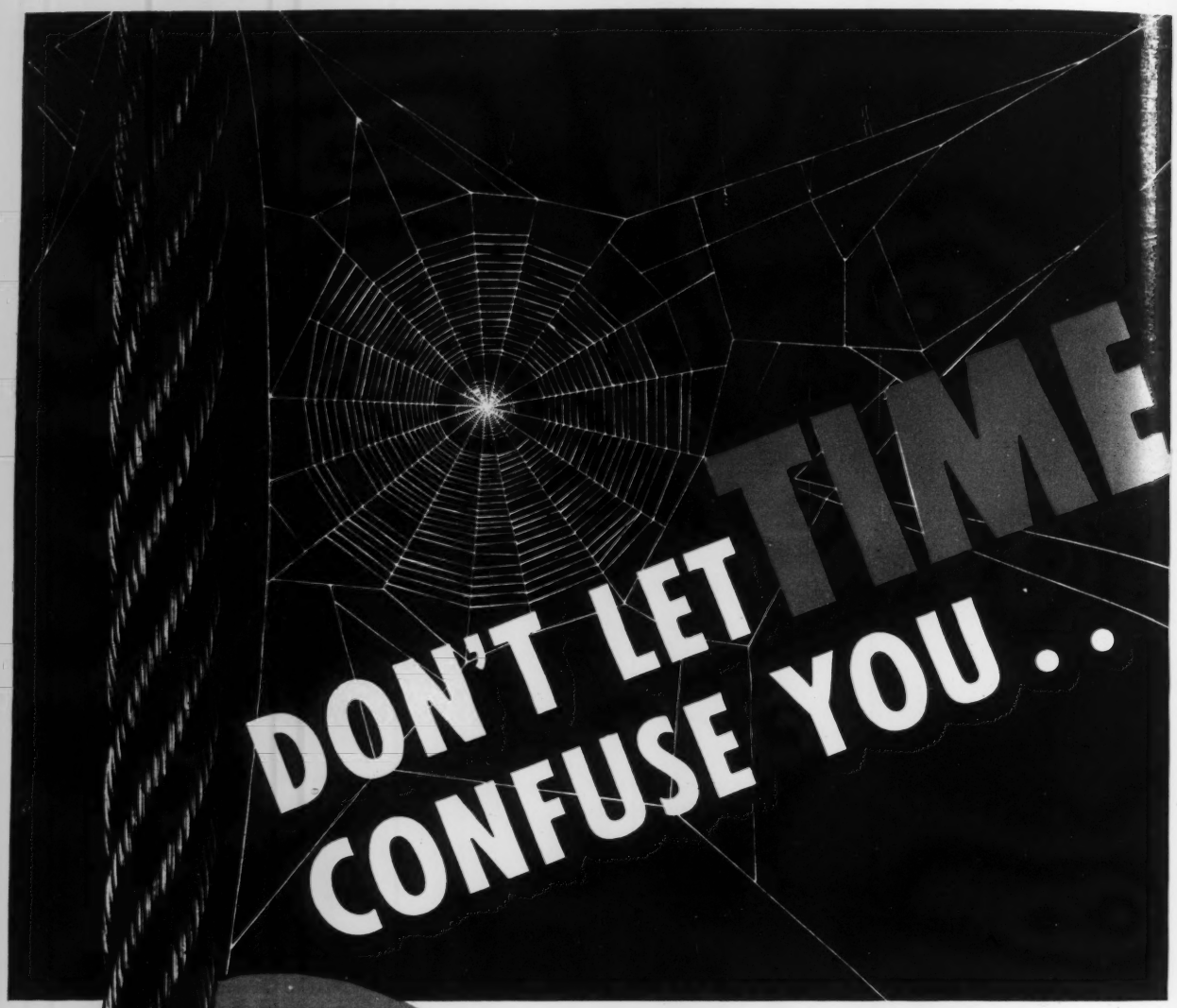
Your Name_____

Title_____

Address_____

_____

- ☐ "Construction and Maintenance with Tarmac"
- ☐ "Membrane Water Proofing"
- ☐ "Dampproofing"
- ☐ "Typical Highway Bridges"
- ☐ "Better Bridge Decking"
- ☐ "Laminex Pre-fabricated Pressure-Treated Culverts"
- ☐ "Highway Posts"
- ☐ "Painting of Creosoted Wood"
- ☐ "Piston Rings for Compressors"
- ☐ "Creosote"
- ☐ "Creosote-Coal Tar Solutions"
- ☐ "Kolineum"
- ☐ "Coal Tar Pitch Roofing"
- ☐ "How to Build Water-cooled Roofs"
- ☐ "Piston Rings for Diesels"
- ☐ Send me complete list of titles.



WICKWIRE ROPE

Use, not time, destroys wire rope. The oil man must think in terms of foot-hole-drilled, the building manager elevator car-miles-traveled, the logger the per-thousand-feet of lumber, the mine and sand or gravel operator per-ton or per-yard of material moved. The unit-of-use cost method is the only sound way of evaluating wire rope. It's the method we want you to use when passing judgment on Wickwire Rope. Our bid for your future business is the lower per-unit-of-use cost that you will get from Wickwire Rope.

WICKWIRE SPENCER STEEL COMPANY

General Offices: 500 Fifth Avenue, New York City; Sales Offices and Warehouses: Worcester, New York, Chicago, Buffalo, San Francisco, Los Angeles, Tulsa, Chattanooga, Houston, Abilene, Texas, Seattle. Export Sales Department: New York City

THE MOTOR YOU ASKED FOR IS STRONG ON PROTECTION

New G-E TRI-CLAD MOTOR

1

Extra Protection

AGAINST PHYSICAL DAMAGE

A truly modern motor must withstand accidental blows, flying chips, dripping liquids, and occasional bumps in moving or mounting. We built the Tri-Clad motor to meet such threats of damage!

We made the frame and end shields of cast iron, using channel and rib sections for strength without excessive weight or bulk; we cast the sturdy, rigid feet integrally with the frame. We completely enclosed the upper portion and carefully baffled all ventilating openings to protect vital motor parts. The bearings have dust-tight cast-iron housings. And the finishing touch—we gave the motor a tough coat of paint to protect against rust and corrosion.

The Tri-Clad motor is fully protected against the accidental ill-treatment some motors encounter all the time, and which *all* motors encounter some of the time. As a safeguard against production interruptions, as a prime factor in lowering costs, as an extra increment of value on machines you build, this new motor means extra profit protection, too.

Make your next induction motors Tri-Clad. General Electric, Schenectady, N.Y.

BUILT FOR PROTEC... ST . . . . . TO LA...

2

Extra Protection

AGAINST ELECTRICAL BREAKDOWN

New stator windings of Formex wire give extra protection internally against moisture, oil, abrasion, and heat aging. New synthetic impregnating and protecting varnishes make a rigid unit with a hard finish.

3

Extra Protection

AGAINST OPERATING WEAR AND TEAR

Sleeve bearings of new design have long life and great load capacity because of new proportions and oil distributing system. The one-piece cast-aluminum rotor winding, with fans cast integrally, is practically indestructible.

GENERAL ELECTRIC

250-49-6058

YOUR OIL MUST STAND UP UNDER Double

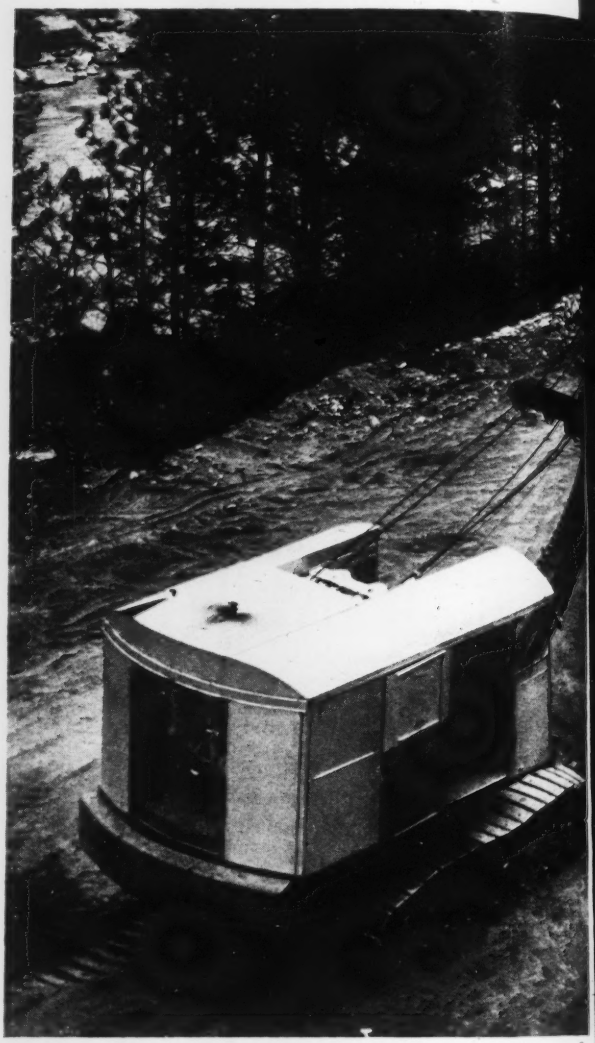
☑ SHOCK LOADS
☑ BAD WEATHER

TO FULLY PROTECT your shovels, the oil you use must stand up under shock loads and bad weather!

Gargoyle Viscolite Oils do just that. Their strong film cushions bearings and gears. It won't squeeze out.

And the adhesive quality of these oils keeps them on the job through bad weather.

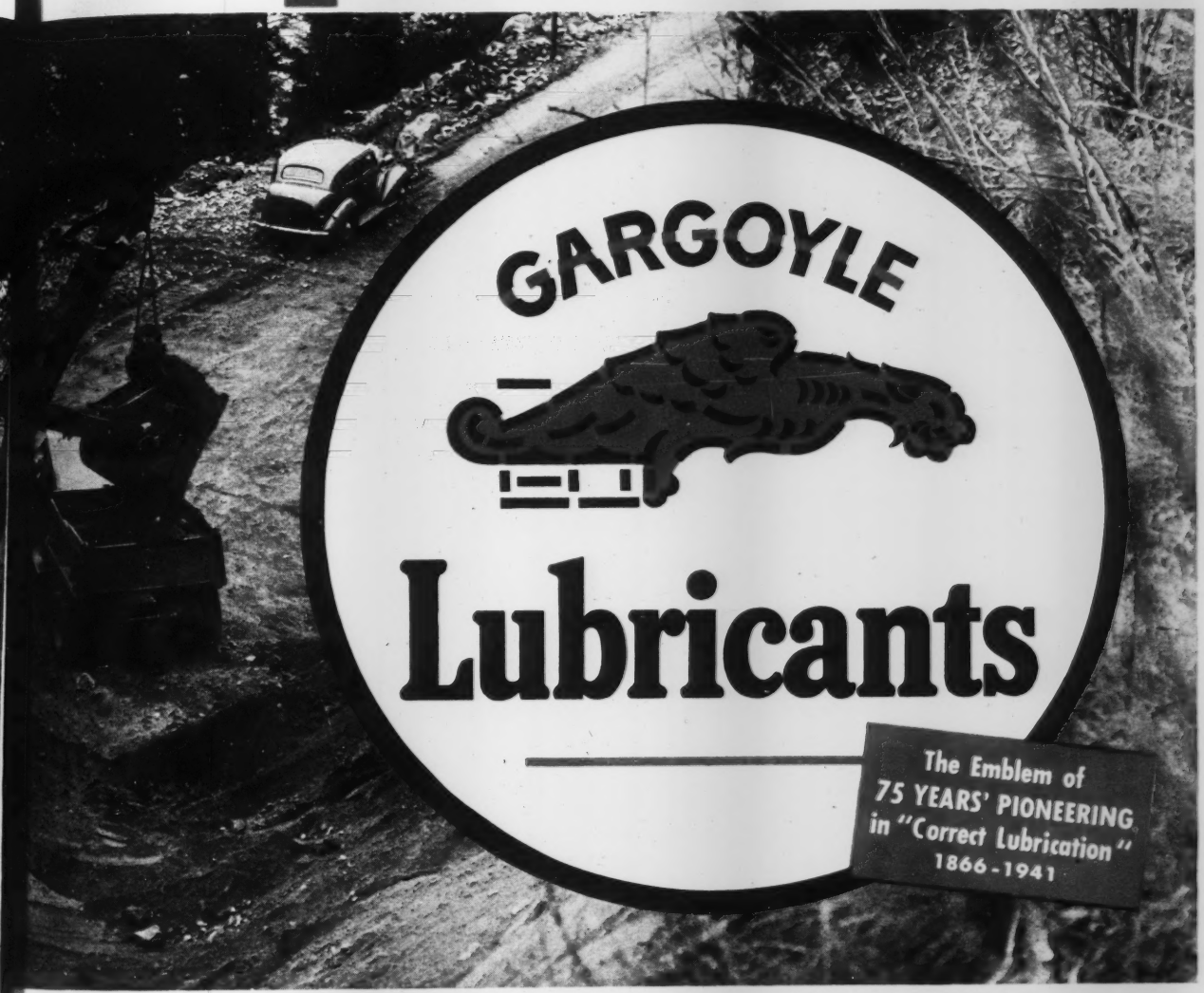
Result—troubles and delays are kept at a minimum!



CALL IN Socony-Vacuum for

YOU'LL BENEFIT FROM: 75 YEARS' LUBRICATION EXPERIENCE • PRODUCTS APPROVED BY ENGINE BUILDERS •

Exposure.



"Correct Lubrication"

THE RIGHT OIL FOR EACH JOB • NEW LUBRICANTS AHEAD OF NEW NEEDS •

SOCONY-VACUUM OIL COMPANY, INC. • Standard Oil of New York Div. • White Star Div. • Lubrite Div. • Chicago Div. • White Eagle Div. • Wadhams Div. • Southeastern Div. (Baltimore) • Magnolia Petroleum Co. • General Petroleum Corp. of Calif.

NO. 9

ALUMINUM, DEFENSE, AND YOU

SIX MORE PLANTS IN FIVE STATES ON THE WAY

DEFENSE PLANT CORPORATION OWNS THEM. We've been designated to build them . . . fast.

Actually, when the names went on the dotted lines of the contract on August 19, we had already placed more than $16,000,000 worth of orders for some of the equipment and materials it takes longest to make and get.

FIVE OF THESE PLANTS will smelt aluminum. Their combined capacity is planned for more than 500,000,000 pounds a year, which is greater than the nation's entire production of aluminum in 1940. Locations: Massena, N. Y., Spokane, Wash., Troutdale, Ore., Los Angeles, and in the State of Arkansas.

The sixth plant will refine alumina from bauxite. Its billion-pounds-a-year capacity adds 58% to the nation's alumina capacity. It will be located at Bauxite, Arkansas.

HOW GOES CONSTRUCTION? At this writing, as fast as title is secured to the sites, contracts are being let for grading and foundations so as to be ready for the structural steel, which is coming as rapidly as it can be gotten.

What is more important, the aluminum plants are scheduled to deliver ingot by the summer of 1942; the refining plant to deliver alumina in early summer, 1942.

WE'VE ASSIGNED a large staff of men full time to headquarters engineering, purchasing, and accounting on this government building job.

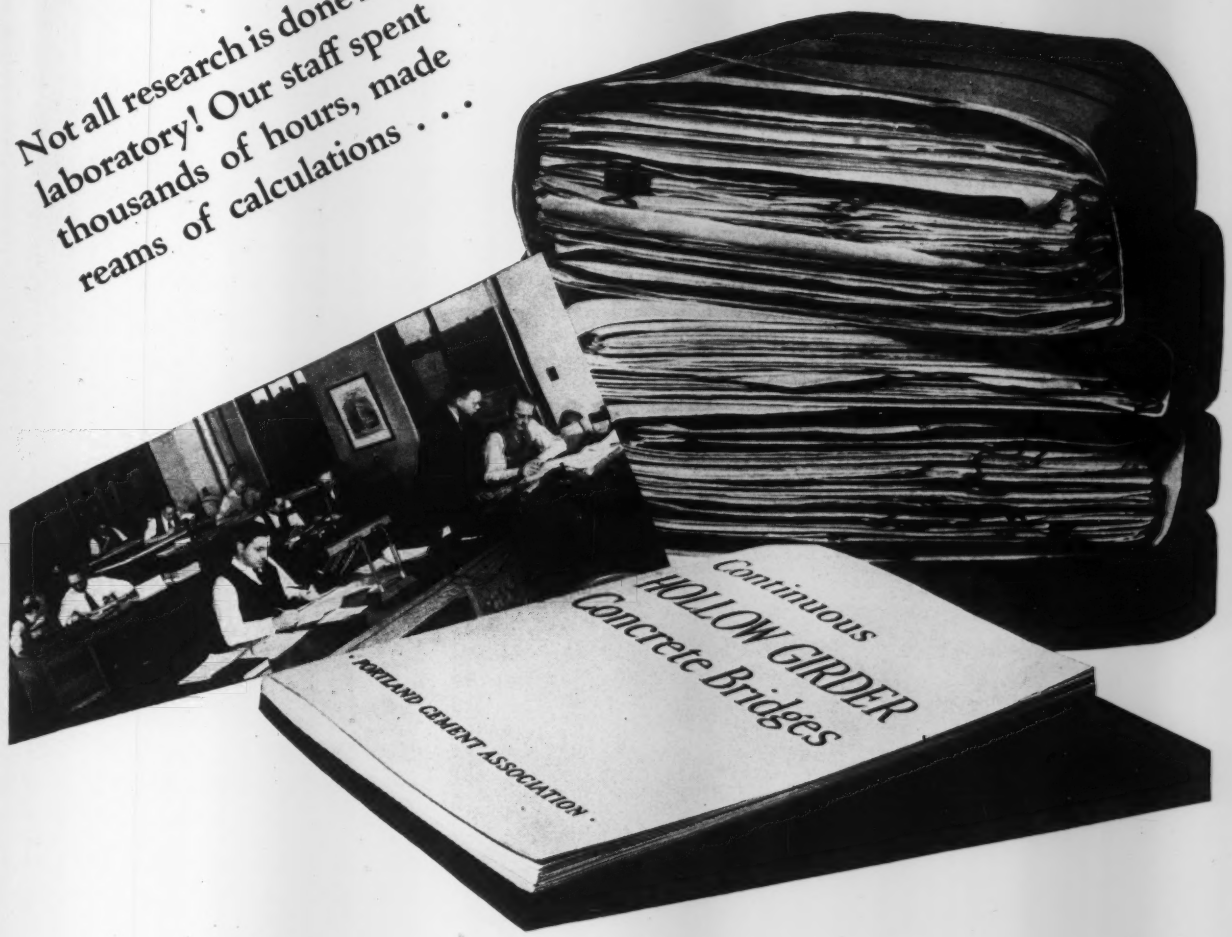
We're sending competent and experienced management men out on these jobs as superintendents and other staff executives on construction, and for subsequent operation of such of these plants as we are designated to operate.

EVERY KNOWN IMPROVEMENT in design and construction and equipment is being incorporated in these plants. We intend that every dollar that will be spent shall be the best dollar's worth that experience can build. We do not make one cent of profit from this assigned job of construction.

We think we know how to get the government value-received for its money, because we are completing the expenditure of more than $200,000,000 of our own money in an expansion program which started after the beginning of the present war. Some of this expenditure is in new alumina and aluminum plants which will bring our own Alcoa capacity up to more than 700,000,000 pounds a year. The remainder is in tremendous expansion of facilities for fabricating every form of aluminum.

DEFENSE, GENTLEMEN, is getting its aluminum.

ALUMINUM COMPANY OF AMERICA


Not all research is done in a laboratory! Our staff spent thousands of hours, made reams of calculations . . .
Continuous
HOLLOW GIRDER
Concrete Bridges
PORTLAND CEMENT ASSOCIATION

to help you save time in designing

CONTINUOUS HOLLOW GIRDER CONCRETE BRIDGES

The new booklet, *"Continuous Hollow Girder Concrete Bridges,"* is a compact piece of printing. But its preparation was a year-long job for our technical staff, involving a review of the experience of leading engineers with this type of bridge, and extensive calculations and notes.

Every designer who has the previous booklet, *"Continuous Concrete Bridges,"* will want this new companion piece on hollow girder design. The simple methods set forth in the earlier work are here applied to larger spans. Special features of hollow girder design and construction that differ from those of shorter spans are treated in detail.

This booklet will apply to long spans the inherent advantages that have brought continuous concrete bridges so rapidly to the fore. Write today for your copy (sent free in U. S. or Canada).

PORTLAND CEMENT ASSOCIATION
Dept. A12c-17, 33 W. Grand Ave., Chicago, Ill.

Please send booklet *"Continuous Hollow Girder Concrete Bridges."*

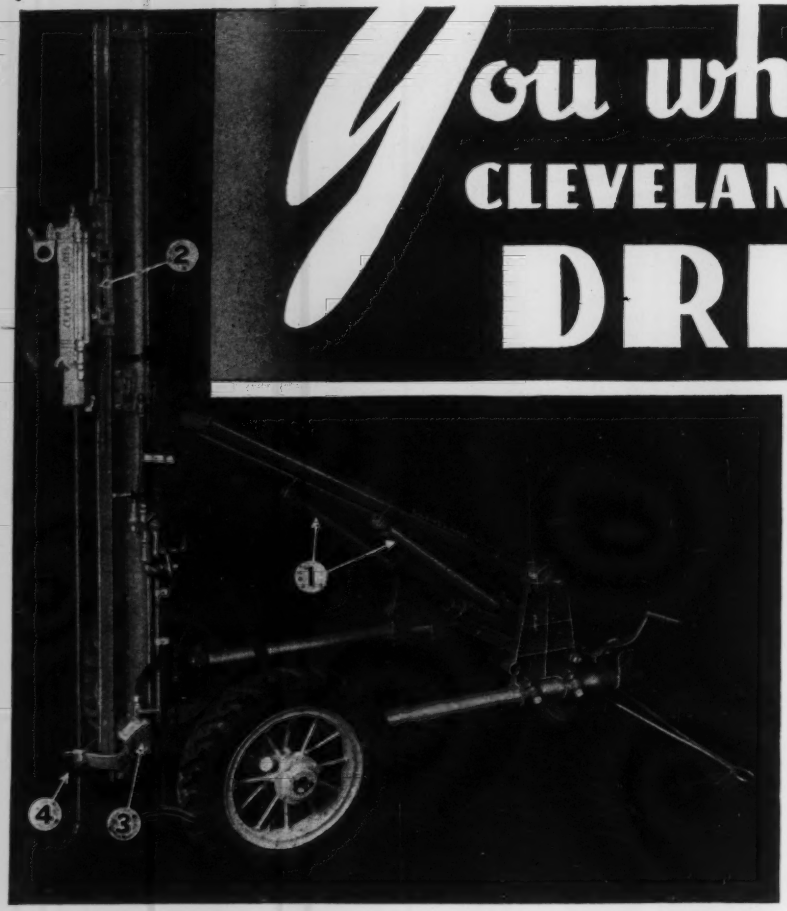
*Name*_____

*Firm Name*_____

*Address*_____

*City*_____ *State*_____

You who know CLEVELAND WAGON DRILLS



★

★

YOU wouldn't have believed it possible, but we have made the Cleveland Drill Rig, or Wagon Drill even better — faster in drilling, faster to move from one hole or position to another, better balanced, easier to get the "toe holes", longer lasting —than in any previous models. Model DR30, this latest and best of all wagon drills, has been in service, under severest conditions, for a year. Now rolling off the assembly lines, ready for you.

What makes it better? Double-screw —geared together—U-Bar setting jack, smoother in action of raising or lowering. Center of gravity of the machine better placed; you can now get the toe holes without shifting the U-Bar on the frame. Slabback mounting for the drill facilitates economical renewal of worn guide parts. The DR30 can be placed, quickly and easily, in position for drilling any hole that the day's work may present.

U-Bar raised and lowered through two jack screws — geared together — smoother and easier to set.

Drifter mounted on a slabback. The construction insures long wear of guides and more economical renewal.

Recoil device promotes faster drilling.

Improved centralizer.

With the Cleveland DR30 is the fast, easy economical, way to drill holes in rock ahead of blasting, especially if the yardage to be excavated is considerable. Let us know where to place a Cleveland DR30 on demonstration. May we send literature?

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The CLEVELAND ROCK DRILL CO.

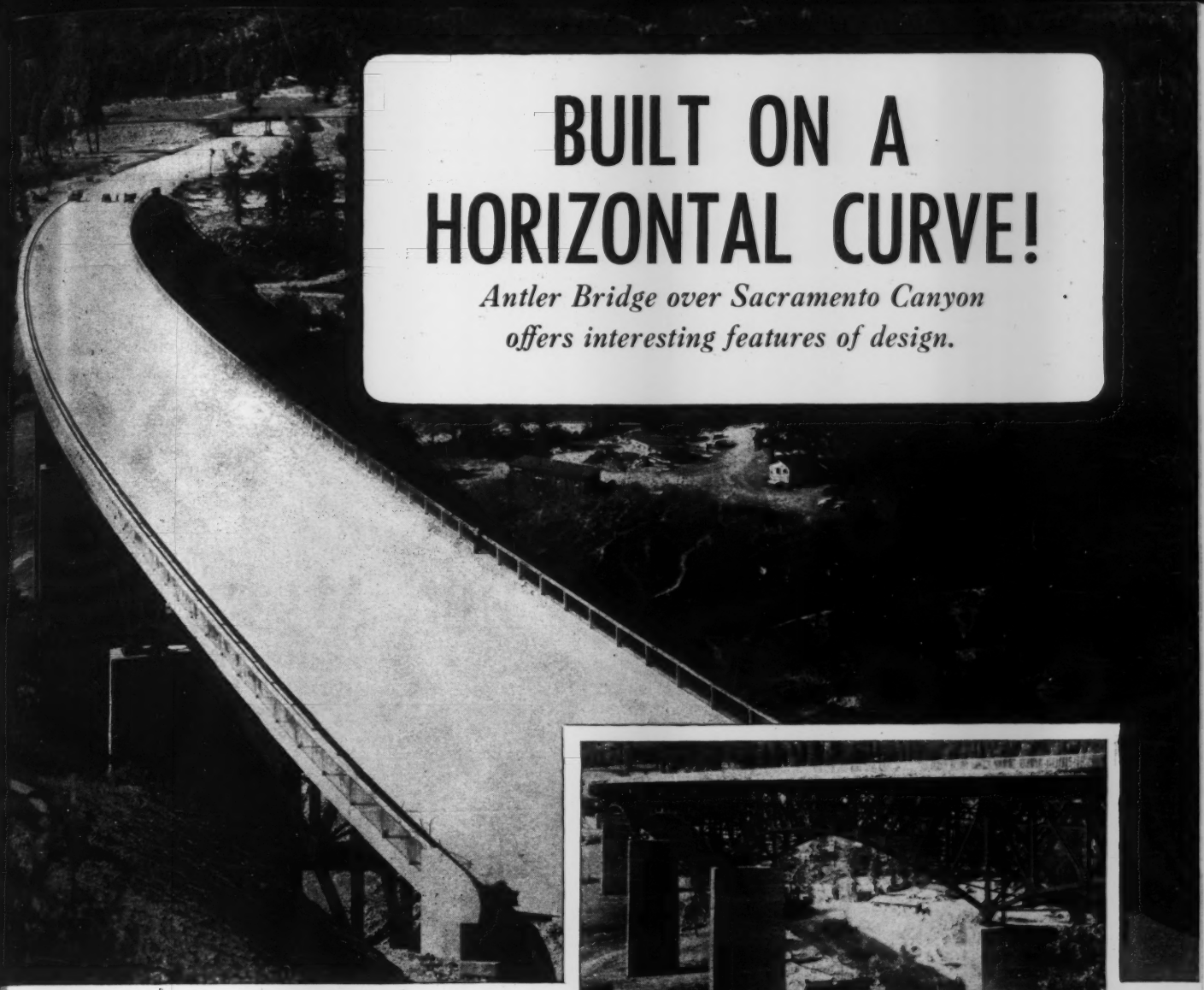
3734 EAST 78TH STREET • CLEVELAND, OHIO

CABLE ADDRESS • "ROCKDRILL"

LEADERS IN DRILLING EQUIPMENT

BUILT ON A HORIZONTAL CURVE!

Antler Bridge over Sacramento Canyon offers interesting features of design.



The Antler Bridge, built jointly by the U. S. Bureau of Reclamation and the State of California, was designed and constructed under the direction of the State Highway Engineers. The United Concrete Pipe Corporation was the General Contractor.

PERHAPS the major project in the relocation of approximately 16 miles of state highway, made necessary by the construction of Shasta Dam, is the Antler Bridge.

It spans the Sacramento River Canyon, at Antler, California, some 18 miles above the site of Shasta Dam.

This is an impressive 1330-foot deck structure carrying a 50-foot, 4-lane concrete roadway flanked by 2½-foot sidewalks. The roadway is built on a vertical grade descending northwardly. It sweeps across the canyon on a horizontal curve of 850-foot radius. Its lines are pleasingly symmetrical.

Of the six supporting concrete piers, the tallest rises 172 feet above its footing. The highest point of the roadway deck is some 210 feet above the low water of the Sacramento. However, upon the completion of Shasta Dam, the backed-up waters will come to within 80 feet of the highest point—practically leveling-off with the tops of the piers at the low end of the structure.

ROADWAY VIEW AND ELEVATION OF THE ANTLER BRIDGE. The impounded waters of Shasta Dam eventually will rise to the approximate level of the concrete pier-tops, inundating the Sacramento river valley.

The steel superstructure, excepting for short beam approach spans at either end, is a symmetrical arrangement of 5 truss spans: two of 189 ft., two of 252 ft., and a central span of 273 ft. The 189-ft. and 252-ft. spans are grouped into two continuous units. Each unit cantilevers 63 feet beyond the central piers to support the 147-ft. suspended truss of the 273-ft. central span; also cantilevers 42 feet beyond the end piers to carry the beam span approaches. Of unusual interest is the truss design which utilized throughout CB Sections for component members—replacing the conventional laced and plated assemblies.

American Bridge Company, as sub-contractor to Columbia Steel Company, fabricated and erected the approximately 1700 tons of steel which entered into this construction.

AMERICAN BRIDGE COMPANY

General Offices: **Frick Building, Pittsburgh, Pa.**

Baltimore · Boston · Chicago · Cincinnati · Cleveland · Denver · Detroit
Duluth · Minneapolis · New York · Philadelphia · St. Louis

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · **United States Steel Export Company, New York**

UNITED STATES STEEL

JAMES B. CLOW & SONS . . . . . COSHOCTON, OHIO

BIRMINGHAM, ALABAMA . . . . NATIONAL CAST IRON PIPE

I always like to hear my boy say

"THANK YOU VERY MUCH"

and that is what I say to you today

KENT S. CLOW*

We haven't forgotten that loyalty to our customers is our best business asset. We certainly have not become "priority snooty." Therefore, if you get a letter from us asking for a priority rating before we can ship materials that you need, don't think that we have gone "high-hat" as the result of the crowded condition of our order book—far from it. We are merely complying with Government requirements and endeavoring as always to be helpful to our friends.

To preserve pig iron (our basic raw material), a rigid system of "priorities" has been instituted. In compliance with the Government's request, our stocks of raw materials and of cast iron pipe and fittings have been reduced to a minimum. They can only be replenished to fill orders that have an "A" priority rating. Right now, our plants are working double shift on orders for a large tonnage of pipe and fittings for army camps, air bases, powder plants, and many industrial plants directly and indirectly engaged in filling army and navy orders—all having high priority ratings.

The priority rulings to date have no intention to entirely eliminate essential civilian services. It has been our experience that where a real need for pipe and fittings exists, a request for the necessary priority has usually received sympathetic attention.

We are most anxious to be helpful to you for we deeply appreciate that our future depends upon our ability to retain your friendship and good will during the present crisis. We pledge ourselves to do everything permitted by existing regulations to justify your continued support both now and after the present emergency is over.

For your understanding of our problem, for your kindly patience, and for your wholehearted cooperation—we most cordially say

"THANK YOU VERY MUCH"

*President of the Clow-National organization. General offices at 201-299 N. Talman Ave., Chicago, Ill.

CAST IRON

A 700,000 YARD JOB FOR UNCLE SAM

The site of one of the new military hospital bases is shown in the photograph. This project involves 700,000 yards of earth-moving. To handle it the contractor uses the following LeTourneau equipment: 4 Model C Tournapulls, 6 Carryall Scrapers, 4 Sheeps Foot Rollers, 1 Rooter and 3 Bulldozers.

That the job will be done in the shortest possible time at the lowest possible cost there is no doubt. The combination of LeTourneau design and Timken Bearings assures it.

The Timken Bearing is an all-American product used by all American industry; and much of its profit has been reinvested in the business—*in America*—so that tremendous facilities have been built up that can now be used against potential enemies.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN

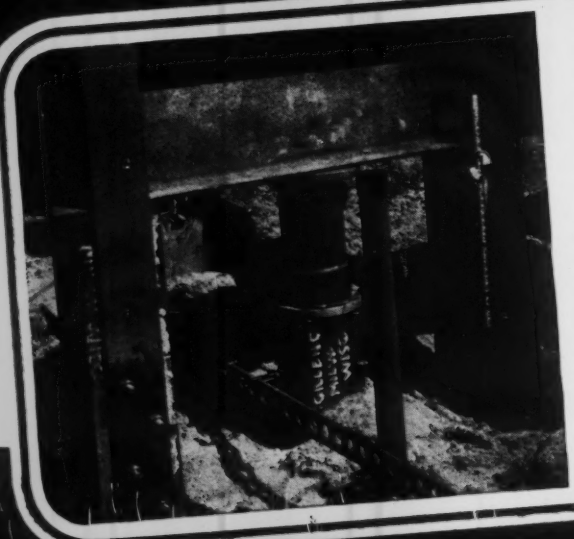
TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

Manufacturers of Timken Tapered Roller Bearings for automobiles, motor trucks, railroad cars and locomotives and all kinds of industrial machinery; Timken Alloy Steels and Carbon and Alloy Seamless Tubing; and Timken Rock Bits.

Milwaukee's Tallest

THE LARGEST STACK EVER BUILT ON A STEEL



TYPICAL TESTING SETUP. *(Fig. 1)* Three test piles were driven at the site in proper location so that they could later be left in place to form part of the permanent footing. Note the arrangement above. Test piles were 10″ H-Piles, 42 lbs. per ft. Anchor piles were 12″ H-Piles. Two of the test piles were loaded to failure at penetration of 57′, failing at loads of 80 and 90 tons respectively. They were then driven to penetration of 80 and 85 ft. respectively and again loaded to failure. At these penetrations the test piles failed at loads of 127 and 170 tons respectively. (Failure was assumed to occur when total penetrations exceeded 1/100″ per ton of applied load.) A third pile was tested only at 86′ penetration and did not exceed the allowable penetration under 100 tons applied load. In the latter case the 12″ anchor piles returned to original position after release of load. The test pile which failed at 170 tons was loaded to a maximum of 185 tons. In this case the net deflection or uplift in anchor piles after release of load was .084″ and .036″. In the test pile loaded to maximum of 127 tons* the anchor piling showed net deflection or uplift of .036″ after release of load.

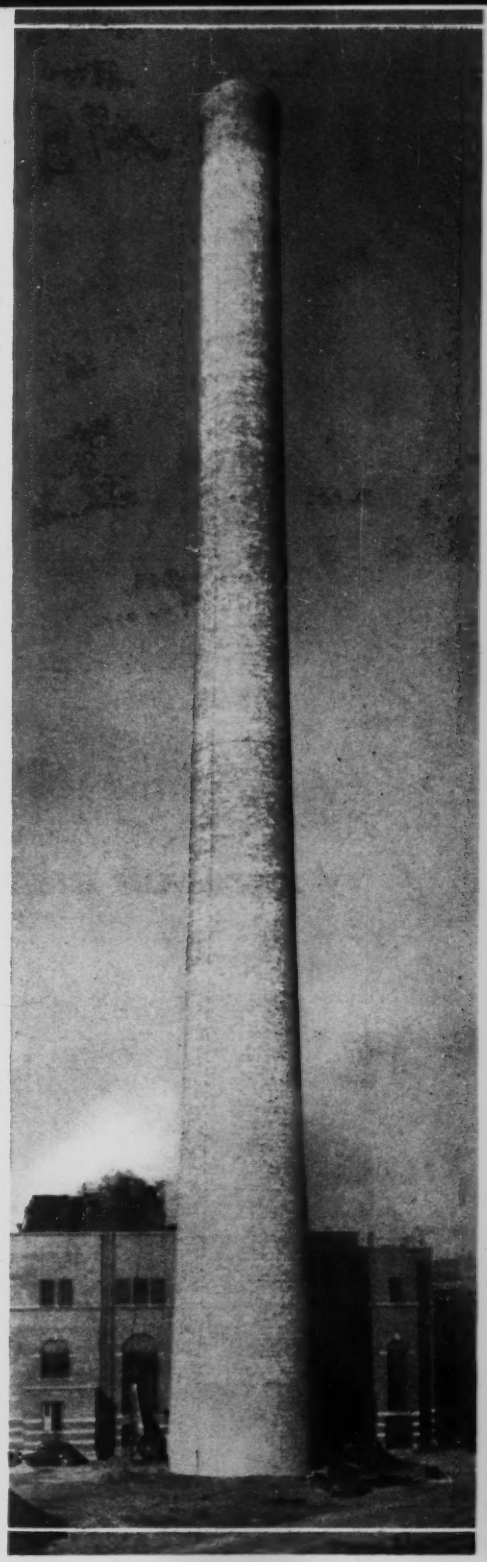
Accurate driving records were kept during driving of test piles and after completion of test loadings, one pile was driven to a total penetration of 115′ and showed no increased resistance to driving in this increased penetration. For this reason 84′ was selected by the engineers as the most economical and efficient penetration for the entire foundation.

*In all cases but this, the anchor piles were driven to the same penetration as the test piles. In this instance, test pile penetration was 80′, whereas penetration for anchor piles was 53′ and 54′.

Chimney

BEARING PILE FOUNDATION

Stands 350 feet high, weighs 6671 tons, is safely supported on U·S·S Steel Bearing Piles 85 feet long



THIS new brick chimney* of the Milwaukee Sewage Disposal Plant towers high above the city skyline. 35′ in diameter at the base, the chimney tapers to 19′7″ at the top. As tall as a 34-story building, it is designed to safely withstand a wind velocity of 100 miles an hour.

Soil conditions at the site made the foundation problem difficult. The soil consists of soft gray clay and marsh clay interspersed with water-bearing sand layers overlying fine sand and gravel and some hard pan at 80 ft.

The footing proper, octagonal in shape, is approximately 58′ in diameter and is anchored and supported by 308 U·S·S Steel Bearing Piles set radially as shown in large photograph at left. To carry maximum design load of 30 tons per pile, the piles—10″ x 10″, 42 lb. sections—were driven in one length to a penetration of 84 ft., a depth determined by loading three test piles later included in the footing. (See Fig 1.) Over the top of the piling 28 tons of reinforcing steel was laid in a criss-cross pattern and covered with concrete to a depth of 12 ft.

U·S·S Bearing Piles were selected for this foundation because, in addition to the necessary load-carrying capacity, they drive without heaving, and insure an extremely high resistance to extraction—a fact highly important in obtaining a safe and secure anchorage for the structure.

In the last seven years we have produced more than twelve million feet of U·S·S Steel Bearing Piles. They have been applied on 1006 foundation projects of every size and kind. Included in this list have been some of the toughest, most unusual Piling jobs ever undertaken. And because our Piling engineers have worked closely on these jobs from start to finish, they have learned a lot about foundation problems that you won't find in the books. It is this practical, down-to-earth knowledge of the latest advances in foundation engineering that we gladly make available to you.

**Engineers:* Sewerage Commission of the City of Milwaukee, Milwaukee, Wisc.
Contractor for Foundation, including driving of steel bearing piles: E. E. Gillen Co., Milwaukee, Wisc.
Contractor for chimney: Alphons Custodis Chimney Construction Co., Chicago, Ill.

U·S·S STEEL BEARING PILES

CARNEGIE-ILLINOIS STEEL CORPORATION

Pittsburgh and Chicago

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Export Company, New York

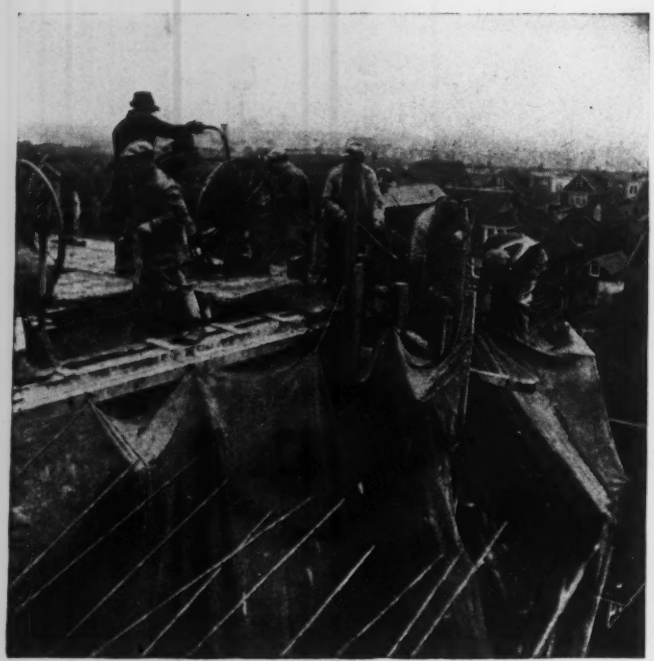
USS

UNITED STATES STEEL

NO WINTER LET-DOWN ON VITAL DEFENSE JOBS

USE 'INCOR'—

- √ ***AVOID FREEZING RISKS***
- √ ***CUT HEAT-PROTECTION COSTS BY TWO-THIRDS***
- √ ***CUT FORM COSTS IN HALF***
- √ ***MAINTAIN HIGH-SPEED SCHEDULES***



FULL-SPEED ahead this Winter . . . don't let cold weather slow vital defense construction. Use 'Incor' 24-Hour Cement for high speed at less cost.

'Incor' is service strong in one-third the usual time . . . saves 2 to 3 days' heat protection on each pour . . . cuts heating costs two-thirds . . . assures fast stripping schedules with safety, even in sub-freezing weather. One form set with 'Incor' produces the same job speed as two form sets with ordinary cement —*top-speed schedules with half as many forms.*

Use 'Incor'* for buildings, heavy-duty floors, machinery foundations, watertight concrete. Write for copy of "Cold-Weather Concreting." Address Lone Star Cement Corporation, Room 2278, 342 Madison Avenue, New York. *Reg. U. S. Pat. Off.

SPEED DEFENSE CONSTRUCTION WITH 'INCOR'

LONE STAR CEMENT CORPORATION

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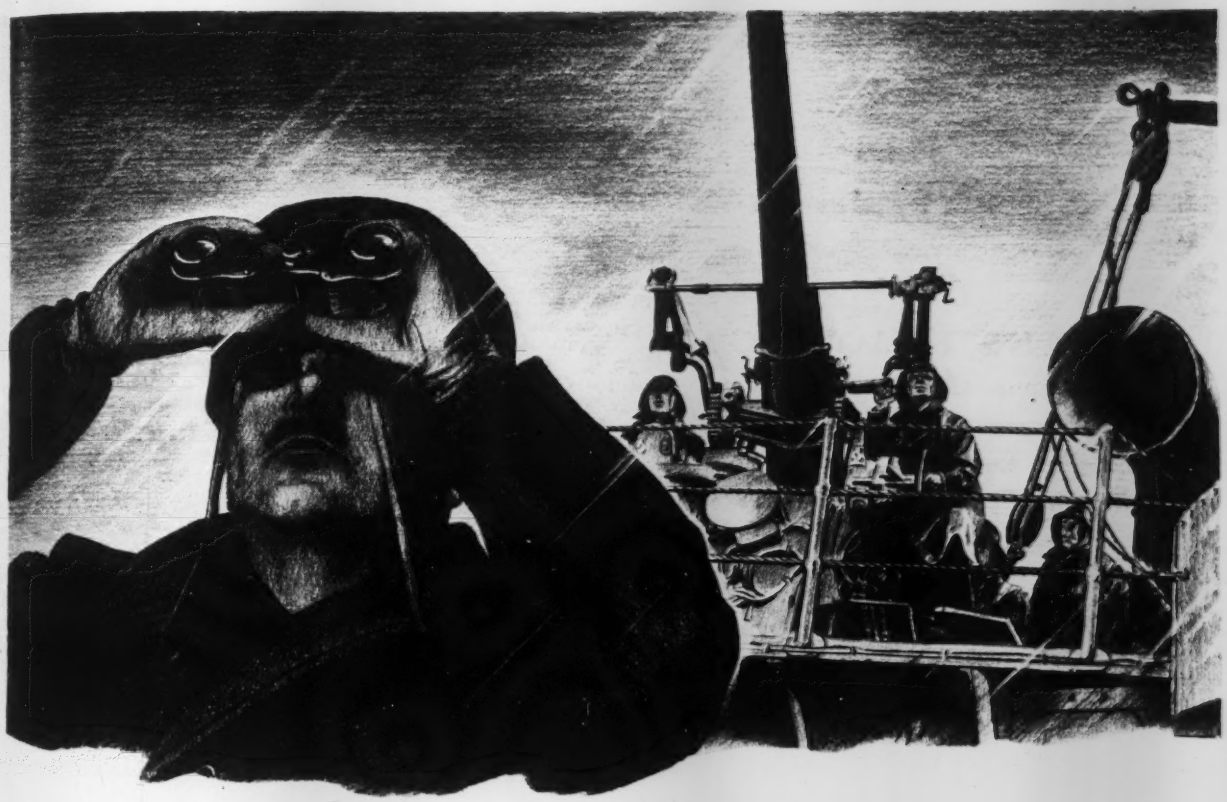


10,400 Guns for Merchant Ships from Steel Conserved by Preformed Wire Rope

★ It pays to use preformed wire rope. Being preformed this "rope" lasts longer—cuts the number of machine shutdowns—steadies production. It is easier, faster, safer to handle. It saves both time and money.

★ But preformed wire rope does far more than that. By lasting longer, it conserves steel, and steel is a vital necessity to America today. Anything that helps conserve steel for America is of itself a vital necessity.

★ The steel conserved *this year* by the longer service of preformed wire rope would be enough to build more than 10,400 3-inch caliber guns for merchant ships.

★ Preformed wire rope is an essential to industry, a necessity for the Nation.

PREFORMED WIRE ROPE

Ask Your Own Wire Rope Manufacturer or Supplier

FORD ASSEMBLY PLANT,

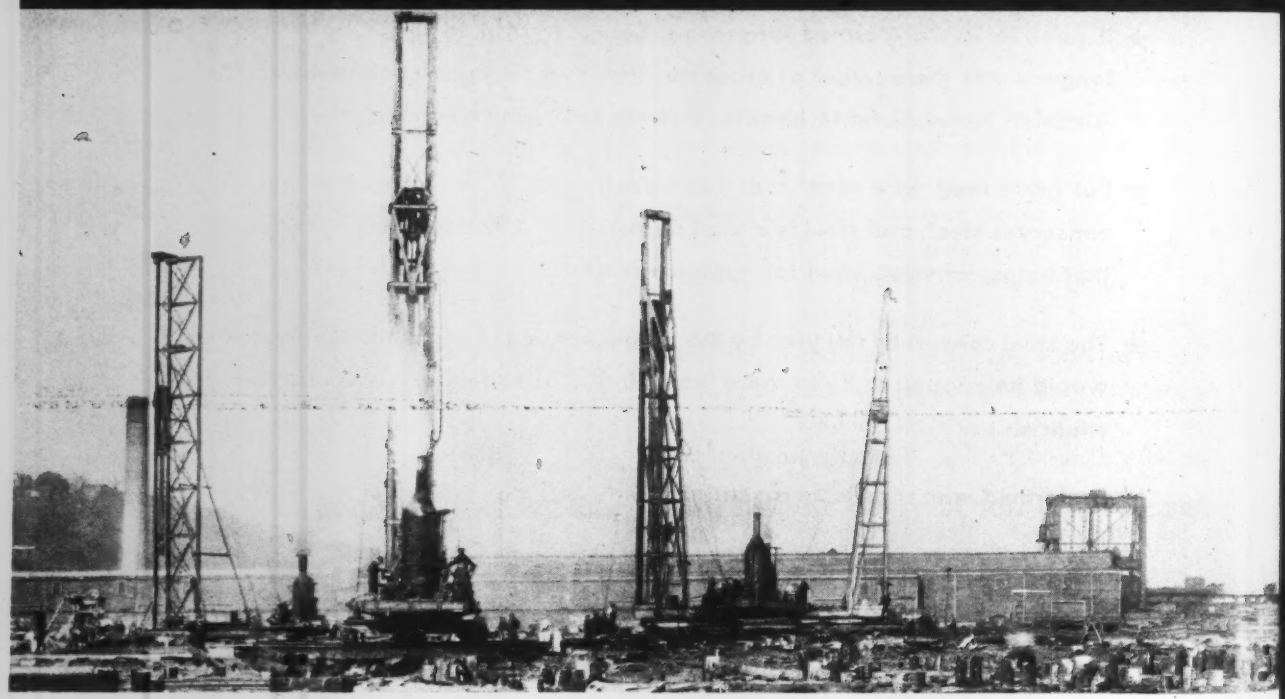
Richmond, Calif.

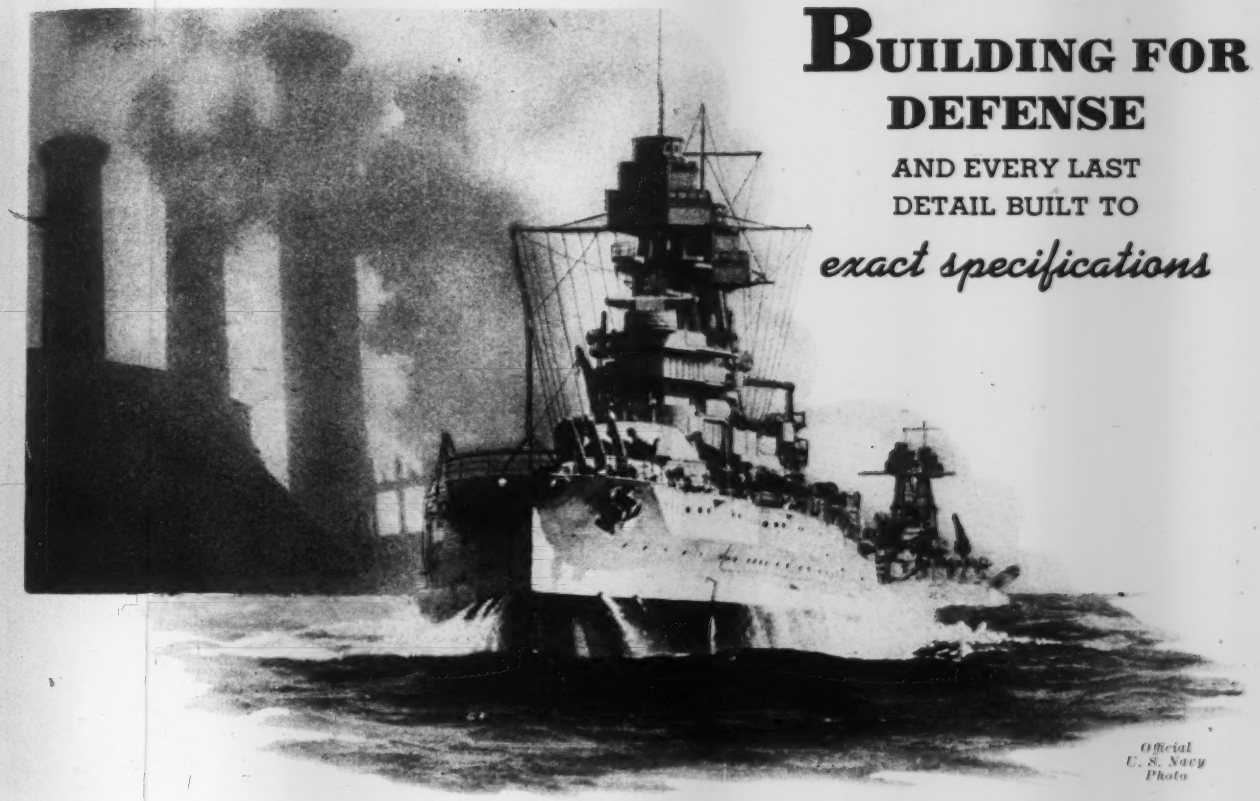
3,496
COMPOSITE PILES.
Average concrete length, 12'8".
Average wood length, 75'

WESTERN'S "FOLLOW DOWN METHOD" for installing Composite Piles drives wood and concrete sections in one operation. Driving apparatus sockets over head of wood pile, forming watertight joint and ensuring perfect alignment. Positive lock between wood and shell is ensured, even before concrete is placed. Shell is in one piece to obviate danger of separation at joints.

Here is a method offering extra speed — extra safety — and proved economy, on piling jobs up to 90 feet in length.

COMPOSITE





Official U. S. Navy Photo

BUILDING FOR DEFENSE

AND EVERY LAST DETAIL BUILT TO

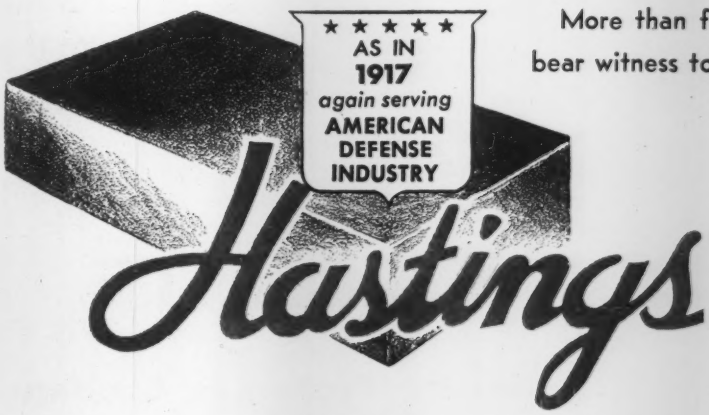
exact specifications

Industrial plant floors should also . . be built to exact specifications

No part of an industrial plant takes more of a beating than the floor. If it is to do its job best it must be the right type and composition—made to exact specifications.

Hastings Asphalt Blocks will give you such exact specification floors—just the right toughness for maximum service, just the correct resiliency for comfort under foot.

More than fifty years of service in American Industry bear witness to these facts.



THE HASTINGS PAVEMENT CO.
25 Broad Street, New York City

ASPHALT BLOCK FLOORS AND PAVEMENTS
Since 1885

FOR VITAL DUTY ON LAND AND WATER

Specification Coatings Gain Longer Service Life

WHEN FORMULATED WITH "BAKELITE" RESINS

After four trips of the S. S. CRISTOBAL, from New York to Panama, the Panama Railroad Steamship Line found that a funnel paint made with BAKELITE Resin had given *double* the service of previous coatings. Even then, a thorough scrubbing restored its original brilliance. Additional savings in maintenance costs were gained by applying... to boot topping, superstructure, hull, king posts and holds ... primers and finishing coats, based on BAKELITE Resins.

IN IMPORTANT government and industrial service requiring protective finishes... on water as well as on land... specification coatings based on BAKELITE Resins have repeatedly demonstrated their outstanding resistance to moisture, heat, abrasion, and other factors that are injurious to paints.

Finishes based on BAKELITE Resins are helping materially to reduce the surface maintenance of locks, dams, bridges, merchant ships, and United States river and harbor vessels. Street and highway equipment coatings — even the traffic paints for road markings — last longer when formulated with BAKELITE Resins.

The Bakelite Laboratories will be glad to assist you in developing paint formulations to meet your particular needs. Also, write for Booklet 11S, "Bakelite Synthetic Resins," and Bulletin 17, "Specifications for Bakelite Resin Finishes."

BAKELITE CORPORATION, 30 EAST 42ND ST., NEW YORK
Unit of Union Carbide and Carbon Corporation

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BAKELITE

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Resins for Protective Coatings

U. S. GOVERNMENT

OFFICE OF THE CONSTRUCTING QUARTERMASTER, Watervliet Arsenal, Watervliet, New York. Sealed bids will be received at this office until 11:00 A.M. (E.S.T.), December 23, 1941 and read publicly for the *construction and completion, not including structural steel, for two buildings.* a. New Manufacturing Building —242'-6" x 401'-9" one and two stories, brick; cer. gl. tile; precast conc. trim, steel sash and monitors, built-up roof on conc. roof plank. b. Field Service (Tank) Repair Bldg. 102'-0" x 322'-0" one and two stories, constr. similar to above. Heating, plumbing and power wiring included in general contract. Plans and specifications are available above address, on deposit of certified check for $50.00 payable to the Treasurer of the United States. (732)

U. S. ENGINEER OFFICE, P. O. Box 59, Louisville, Ky. Sealed bids will be received here until 11:00 a.m. C.S.T., January 7, 1942, and then opened for *construction of Flood Protection Works, Pumping Plants, Paducah, McCracken County, Kentucky.* $10 deposit required for plans. Plans may be seen at U. S. Engineer Offices: Third and Washington Streets, Paducah, Kentucky, and 612 Federal Building, Louisville, Kentucky. Further information on application. (725)

WAR DEPARTMENT: United States Engineer Office, Galveston, Texas. Sealed bids will be received until 2:00 P.M., January 8, 1942, and then publicly opened for furnishing all labor and materials and performing all work for *removal of wrecks* (one ship, seven barges, and one tug) from the Sabine River adjacent to Orange, Texas. Further information on application. (727)

UNITED STATES ENGINEER OFFICE, NEW YORK DISTRICT, NEW YORK, N. Y., Room 420, Whitehall Building, 17 Battery Place, New York, N. Y. Sealed bids will be received until 12:00 Noon, December 22, 1941, and then publicly opened, for furnishing all labor and materials and performing all work for *excavating and satisfactorily disposing of approximately 66,950 cubic yards*, place measurement, of ledge rock and approximately 112,450 cubic yards, place measurement, of material other than ledge rock from Section 7, Rock Area 12 of the New York and New Jersey Channels. (679)

U. S. ENGINEER OFFICE, Wilmington, N. C. Sealed bids, in duplicate, will be received until 12 o'clock Noon, December 30, 1941, and then publicly opened, for furnishing all labor and materials and performing all work for *dredging approximately 380,350 cubic yards of material* from Pamlico and Tar Rivers, N. C., between the highway bridge at Washington and a point in Tar River approximately 17¼ miles above the Atlantic Coast Line Railroad bridge at Washington, N. C. Further information upon application. (698)

WAR DEPARTMENT, U. S. Engineer Office, 332 Post Office Building, Baltimore, Maryland. Sealed bids, in duplicate, will be received here until 11:00 A.M. E.S.T., December 29, 1941, and then publicly opened for furnishing all labor, materials (except certain equipment furnished by the Government) and performing all work required for the *construction of two pumping stations and appurtenant works* including construction of three reinforced concrete relief culverts at Plymouth, Pa. Plans and specifications available upon receipt of certified check in amount of $25.00 made payable to the "Treasurer of the United States." Further information upon application. (704)

U. S. ENGINEER OFFICE, Clock Tower Building, Rock Island, Illinois. Sealed bids will be received here until 11:00 o'clock A.M., C.S.T., January 15, 1942, and then publicly opened for furnishing all plant, labor and materials and performing all work for *construction of an Upper Approach Deflection Dike*, located about 2/5 of a mile upstream from Lock and Dam No. 22, Mississippi River, near Saverton, Missouri. Further information on application. (735)

U. S. ENGINEER OFFICE, Huntington, West Virginia. Sealed bids to be received for furnishing all labor and certain materials and performing all work for constructing the Bluestone Dam and appurtenant works in the New River near Hinton, West Virginia has been deferred until 10 AM, EST, December 23, 1941. (737)

WAR DEPARTMENT, Office of the Constructing Quartermaster, Harbor Defenses of Boston, Army Base, Boston, Massachusetts, December 11, 1941. Sealed bids, in triplicate, will be received at this office until 1:00 P.M. (E.S.T.) December 22, 1941 and then publicly opened for *furnishing, fabricating, delivering, erecting and painting of structural steel for extension to building* No. 311, sea coast gun shop, structural steel, frame for building 462' long, 160' wide, one-story high, equipped with craneways, at Watertown Arsenal, Watertown, Mass., in accordance with Specifications No. 9042 (CQM 464). Plans and specifications will be available at office of the Constructing Quartermaster on December 12, 1941, after 12:00 noon, and will be furnished where desired, upon deposit of certified check or U. S. Postal Money Order in the amount of $25.00 made payable to the Treasurer of the United States. (738)

SEALED BIDS, INDORSED "Bids for freight elevators specification no. 10666," will be received until 11 a.m., Dec. 23, 1941, at the Bureau of Yards and Docks, Navy Department, Washington, D. C., and then and there publicly opened for *two electric freight elevators and hoistway entrances at the Navy Yard, New York (Brooklyn), New York.* Specification no. 10666 and accompanying drawing may be obtained on application to the Bureau or to the Commandant, Navy Yard, New York (Brooklyn), N. Y. Deposit of a check or postal money order for $10, payable to the Chief of the Bureau of Yards and Docks, is required as security for the safe return of the drawing and specification. B. MOREELL, Chief of Bureau. 29 November 1941. (742)

SEALED PROPOSALS will be received at this office until 2:30 P. M. Central Standard time December 23, 1941 for furnishing a *hydraulic press* and until 2.30 P. M. Central Standard time January 9, 1942 for furnishing a *pulp bleaching plant.* Specifications may be had on application at this office, Forest Products Laboratory, Madison, Wisconsin. (739)

WAR DEPARTMENT: United States Engineer Office, Galveston, Texas. Sealed bids will be received until 2:00 P.M., January 13, 1942, and then publicly opened for furnishing all labor and materials and performing all work for *dredging approximately 1,963,000 cubic yards of material* from the Channel from Galveston Harbor to Texas City, Texas from Station 31+000 to Station 1+439. A total channel length of approximately 29,561 linear feet. The work is classed as maintenance. Further information on application. (741)

WAR DEPARTMENT, U. S. Engineer Office, 332 Post Office Building, Baltimore, Maryland. Sealed bids, in duplicate, will be received here until 11:00 A.M. E.S.T., January 7, 1942, and then publicly opened for furnishing all plant, labor and materials for performing all work required for the *construction of an 120' x 200' A. C. Hangar with Integral Control Tower and Boiler House and the utilities therefor*, complete at the Aberdeen Proving Ground Airfield, Aberdeen, Maryland. Plans and specifications available upon receipt of certified check in amount of $10.00 made payable to the "Treasurer of the United States". Further information upon application. (745)

(Continued on page 142)

Where To Buy

Products • Specialties

Services for the

construction industry

TERRY ENGINEERING COMPANY

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BRIDGES - TOWERS - BUILDINGS
MISCELLANEOUS METALS

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CONCRETE BOND

Living-Stone bonds new concrete to old—for patching and resurfacing—in use since 1905. Contains no acids. Cost 1c per sq. ft.
Full details on request

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We Specialize in the REMOVAL OF SALAMANDERS — CONCRETE FOUNDATIONS
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THE "Where To Buy" Section of Engineering News-Record supplements other advertising in this issue with these additional announcements of products and services essential to the construction industry. Make a habit of checking this page each issue.

The contractor's technical ability and experience receive full consideration when we handle bonds for him.

ÆTNA CASUALTY & SURETY COMPANY
Hartford, Conn.
CONTRACT BONDS FOR RESPONSIBLE CONTRACTORS
Agents Everywhere

OFFICIAL PROPOSALS

Bids: December 23 (733)

Sewer Construction

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 125-S

Sealed proposals for constructing approximately 1,730 feet of 24-inch and 5,650 feet of 36-inch reinforced-concrete pipe sewers on Contract No. 125-S will be received at the office of the Washington Suburban Sanitary Commission, Owens Avenue, Hyattsville, Maryland, until 3:00 P.M., Tuesday, December 23, 1941, at which place and time they will be publicly opened and read.

Plans and specifications may be obtained from Harry R. Hall, Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $5.00, which deposit will be returned to bidders, or to those returning plans and specifications in good condition.

PERRY BOSWELL
J. DONALD CLAGETT
FRANK B. SMITH
Commissioners.

Bids: December 22 (743)

Fences

SEALED BIDS WILL BE RECEIVED by the New York City Tunnel Authority at Room 1009, 200 Madison Avenue, Manhattan, as follows:

Until 11 a.m. on
MONDAY, DECEMBER 22, 1941
for labor and materials to erect chain link fences, at Borden Avenue, between 2nd and 5th Streets, in the Borough of Queens, for the Queens Midtown Tunnel.

The Form of Bid and Specifications may be obtained at the office of the Authority.

The Authority reserves the right to waive any informalities in or to reject any or all bids.

Day of insertion will b:e December 18.

Bids: January 8 (744)

Water Main Extension

LATHAM WATER DISTRICT—
COLONIE, N. Y.

Sealed bids for the construction of two wells, pumping stations, pumps, Diesel Engine, controls, piping, valves and appurtenances, also for the construction of cast iron water main extensions will be received at the Town Hall, Newtonville, N. Y., until 7:30 P.M., Eastern Standard Time on the 8th day of January 1942, and then at said Town Hall, publicly opened and read aloud.

The Information for Bidders, Form of Contract, Plans, Specifications, and Form of Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, N. Y. and at the office of Solomon & Keis, Consulting Engineers, 257 Broadway, Troy, N. Y., copies thereof may be obtained at the said offices of the Town Clerk, or Solomon & Keis upon payment of $25.00 for each set. Any bidder upon returning such set in good condition will be refunded his payment and any non-bidder upon so returning such set promptly will be refunded $20.00.

The Town Board, Colonie, N. Y., reserves the right to waive any informalities in, or to reject any, or all bids.

A certified check made payable to the Order of the Town Board, Colonie, N. Y., in the amount of five per centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfeit the deposit as liquidated damages, and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.

The successfull Bidder will be required to furnish a performance bond satisfactory to the Town Board of Colonie, N. Y., in the amount of the contract, and having as surety thereon such surety company or companies as are acceptable to the Town Board of Colonie, N. Y.

The work will be let in three separate contracts as follows:

SECTION 1—Testing for Proposed Well No. 9, Wells Nos. 8 and 9, Pumping Equipment, Diesel Engine, and appurtenances.

SECTION 2—Pumping Station Buildings with Pump Foundations.

SECTION 3—Water Main Extension over Maxwell Road, Waterman Avenue Extension, Pennsylvania Avenue Extension, Albany Street Extension No. 2 and Sand Creek Road Extension.

No Bidder may withdraw his bid within thirty (30) days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

Award of contracts is subject to approval of projects by the Water Power and Control Commission of New York State.

Dated December 15, 1941

John W. Howarth, Town Clerk
Solomon & Keis
Consulting Engineers

U. S. Government

(Continued from page 141)

SEALED BIDS, in duplicate subject to the conditions contained herein, will be received until 10 A.M., December 30, 1941, and then publicly opened, for furnishing all labor and materials and performing all work for the *construction of Sewers and Sewage Treatment Works in the Borough of Wrightstown, Burlington County, New Jersey.* Copies of plans, specifications and other contract documents are on file and open to public inspection at the offices of: William J. Finley, Regional Director, Federal Works Agency, Defense Public Works Division, located at Room 300 Broad Street Trust Building, Broad and Stiles Streets, Philadelphia, Pennsylvania. Where copies of plans and specifications are requested, a deposit of twenty-five ($25.00) dollars in the form of a certified check, payable to the Treasurer of the United States of America, will be required to insure their return. Plans and specifications will be issued from the office of the Regional Director, Room 300 Broad Street Trust Building, Broad and Stiles Streets, Philadelphia, Pennsylvania. Guarantee will be required with each bid as follows: Bid Bond, money order, certified check or cashier check of not less than two per cent of the amount of the bid. Performance bond will be required as follows: 100% of the amount of the contract. Liquidated damages for delay will be $50.00 per calendar day. Partial payments will be made as set forth in Article 16 of contract. Article on patents will be made a part of the contract. Bids must be submitted upon the Standard Government Form of Bid and the successful bidder will be required to execute the Standard Government Form of Contract for Construction. The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any any bid, unless such bid is qualified by specific limitation. Envelopes containing bids must be sealed, marked, and addressed as follows: William J. Finley, Regional Director, Federal Works Agency, Defense Public Works Division, Room 300 Broad St. Trust Building, Broad and Stiles Streets, Philadelphia, Pennsylvania. Bid for D. P. W. Project N. J. 28-117. To be opened 10 A.M., Dec. 30, 1941. (747

WAR DEPARTMENT, Office of The Constructing Quartermaster, 120 Wall Street, New York, N. Y. Sealed proposals will be received at this office until 11:00 a.m., E.S.T., January 2, 1942, and then opened publicly, for *construction and completion of Temporary Housing including utilities thereto at Fort Hamilton, Brooklyn, New York.* Plans and specifications may be obtained from the above named office upon deposit of a certified check in the amount of $25.00 made payable to the Treasurer of the United States. (746)

Contractors, LIKE ARMIES, Need Modern Equipment . . .

CONSTRUCTION work is WAR—a struggle against stubborn natural forces—To-day carried on by mechanized manpower.

And the equipment must be modern and efficient, for the Contractor to win his war.

You Contractors who are bidding on Public Works, advertised in these pages, will be interested in looking through the rest of the advertising pages, and seeing all that is new in construction equipment. See the big improvements that manufacturers have created in familiar forms of equipment—cranes, power shovels, draglines, tractors, wheeled-scrapers, and the wide range of machines and tools needed on any big job to-day.

Here is the place to keep pace with the improvements in modern construction equipment, tools, and materials for construction. This enables you to bid low enough to "Land the Job"—and—to make money on it. Watch the newspaper of the engineering construction field—the ENGINEERING NEWS-RECORD.

SEARCHLIGHT SECTION

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10 cents a word, minimum charge $2.00.
POSITIONS WANTED (full or part-time salaried employment only). ½ the above rates, payable in advance. (See ¶ on box Numbers.)
PROPOSALS, 50 cents a line an insertion.

INFORMATION:
BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count 10 words additional in undisplayed ads.
DISCOUNT of 10% if one payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED—RATE PER INCH:
The advertising rate is $6.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.-R.

NEW ADVERTISEMENTS received by December 24th appear in January 1st issue subject to limitations of space available

A COURSE OF INSTRUCTION BY MAIL IN

STRUCTURAL ENGINEERING

Thirtieth Year

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B—Architectural Engineering.
C—Special Course (State Board Exams. for P.E.)
D—Structural Engineering (complete).
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$2,500 to $25,000

This thoroughly organized advertising service of 32 years' recognized standing and reputation carries on preliminary negotiations for positions of the caliber indicated above, through a procedure individualized to each client's personal requirements. Several weeks are required to negotiate and each individual must finance the moderate cost of his own campaign. Retaining fee protected by a refund provision as stipulated in our agreement. Identity is covered and, if employed, present position protected. If your salary has been $2,500 or more, send only name and address for details.

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POSITIONS VACANT

(See also "Selling Opportunities Offered")

DRAFTSMAN, Chief, experienced in designing and detailing steel plate work. Give list of former employers and state nature of work performed. Give age and salary requirement. Steady work offered with advancement. Apply at once to Tippett & Wood, Phillipsburg, N. J.

GRADUATE CIVIL ENGINEERS wanted preferably with from two to five years general experience—as field engineers in connection with Water Waste Surveys, Distribution Studies and Trunk Main Surveys of Municipal Water Distribution Systems. The Pitometer Company, Inc., 50 Church St., New York City, N. Y.

EMPLOYMENT SERVICE

EXECUTIVES AND TECHNICAL MEN. Qualified candidates desiring $2,000 to $20,000 positions may contact employers through our confidential services, established 26 years. The National Business Bourse, 20 W. Jackson Blvd., Chicago.

POSITIONS WANTED

CIVIL ENGINEER GRADUATE: 30 years experience: Design, Construction: Industrial Plants; Water Supply; Hydro-electric Developments. PW-393, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

PROJECT MANAGER, Chief Engineer, 30 years experience, 13 years operating own construction business, now employed on Cost Plus Government Contract, available on short notice. PW-416, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

PROJECT MANAGER available. Extensive experience on large scale operations. PW-430, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

CONSTRUCTION SUPERINTENDENT 25 years experience on Bridges, Viaducts and Buildings, exceptionally well qualified for concrete structures. Available now. Salary open. PW-443, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

CONTACT MAN: American, fluent Spanish, available to company desiring new business in Latin America. PW-455, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

PROJECT MANAGER
Available
Thirty-three years experience on large projects. Recently negotiated and organized large defense contract and handled construction of same. Have obtained and handled construction contracts under Corps of Engineers, U. S. Army.
Available Jan. 1, 1942.
PW-452, Engineering News-Record,
520 N. Dearborn St., Chicago, Ill.

WANTED!
Engineers—Draftsmen
by Curtiss-Wright

Engineers and draftsmen not now employed on defense work. Men between the ages of 24 and 36 with at least three years' experience in engineering and drafting.

Opportunity offers immediate employment. Apply now in person or make application by mail, addressing any of the plants listed below.

Dept. J
Curtiss-Wright Corporation
AIRPLANE DIVISION
Buffalo, N. Y. Columbus, O. St. Louis, Mo.

WANTED
$4000.00 Assistant Sales Manager

Position waiting for right man. Must know construction equipment, be a merchandiser, able to handle men. Location Middle West.

Position now vacant.

Correspondence confidential.
P-466, Engineering News-Record
520 No. Michigan Ave., Chicago, Ill.

POSITIONS WANTED

PIPING SUPERINTENDENT, age 34 — 12 years construction experience including 1 year European service; character and experience references given. Location anywhere in U. S. A. C. W. Mitchell, 2528 Peabody Ave., Dallas, Texas.

YOUNG MAN—28—desires a start in engineering; completed course in Highway Engineering with International Correspondence Schools. Would like to apply technical knowledge to practical work. Will accept modest salary to start. PW-461, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

MASON 30 years experience desires position with established concern as foreman. Familiar with all types cement work. Age 51. PW-460, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

WATER WORKS ENGINEER desires permanent position with Public Water Supply or Industry. Seventeen years efficient supervision of engineering, construction, maintenance, operation and industrial problems. Distribution system design, pump specifications, tests, water treatment, waste surveys, flow studies, meter maintenance, office routine, purchasing, etc. PW-468, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

CIVIL ENGINEER, with 16 years experience in design and construction of Electric Transmissions and Distribution Lines, Substations, Power Plants, Earth Dams, Concrete Buildings, and Highways. Now employed, desires change. PW-469, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

CIVIL ENGINEER, 36, single, 2½ years college, 16 years actual experience Railroad, Highway airports and small building construction. Petroleum asphalt paving specialty. Speak, read and write Spanish. Morse telegrapher. Now employed. Available short notice. Passport. PW-470, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

CONSTRUCTION SUPERINTENDENT. Graduate Engineer accustomed to responsible charge extensive projects in foreign, tropical and U. S. fields. Have organized and directed munition and ordnance defense jobs as well as private massive construction in nearly all lines on land and in water inclusive of equipment installation. Handle design and construction. Well known corporation for whom just completed large government project available for reference and all past connections. PW-472, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

WANTED

½ YD. to ¾ YD. TRUCK CRANE—Must be recent model, good condition. Give price, location and full particulars. W-467, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

PATENT ATTORNEY

PATENTS, TRADE-MARKS. Booklet, "General Information Concerning Inventions and Patents" and "Fee Schedule" sent without obligation. Established 1915. Lancaster, Allwine & Rommel, Suite 454, 815 15th St., N.W., Washington, D. C.

(Continued on page 144)

SEARCHLIGHT SECTION

FOR SALE

TRANSITS AND LEVELS. New and used, sale, rent, repair, prompt service. O. Griner, 920 Oak St., Kansas City, Mo.

BIDS FOR SALE OF FLOATING PLANT U. S. Engineer Office, Vicksburg, Miss.—Sealed bids will be received here until 10:30 a.m. CST, December 23, 1941, *for sale of the Dredge Pontotoc and equipment.* Further information on application. (713)

SELLING OPPORTUNITIES

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Selling Agencies—Sales Executives
Salesmen—Additional Lines

OPPORTUNITY OFFERED

SALESMAN WANTED. Exceptional opening for man who likes to sell. Qualifications: first, proven selling ability; second, resourcefullness—ability to think for himself—a self-starter; third, belief in thorough, intimate knowledge of product as foundation for successful effort. Background of mechanical engineering or sales promotion helpful but not essential. Our company leader in its field and in business many years, in a stable, expanding industry. Good salary to start, even during training period, plus expenses and bonus when in field. Permanent. One year's training at factory, Western Pennsylvania; afterwards, full-time field work. In reply, include past business connections, schooling, age, height, weight, references (which will not be checked until after you know who we are), recent snapshot, and details regarding your selling experience and ability. Our sales personnel knows of this advertisement. Write in confidence to SW-471, Engineering News-Record, 330 W. 42nd St., New York, N. Y.

SALESMAN WANTED

. . . . for well known line of reciprocating and centrifugal pumps and air compressors. Must be thoroughly familiar with general industrial trade in Metropolitan New York area.

Give detailed qualifications, type and amount of remuneration expected.

Permanent position with good future. Applications treated in strict confidence.

SW-454, Engineering News-Record
330 West 42nd Street, New York City

COMPLETE STONE CRUSHING or SAND and GRAVEL PROCESSING SERVICE

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We will install NEW, MODERN portable or semi-portable plant in any practical location. Capacities 100 to 150 Tons of stone per hour or 150 to 200 Tons of sand and gravel per hour.

ESTIMATES FURNISHED WITHOUT OBLIGATION

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Contractors Service Corp.

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NEW and USED
Sizes from 20 x 20 to 80 x 200
Immediate Delivery
For CONCRETE CONSTRUCTION

TARPAULINS

BRAND NEW
18 ounces — Water Proofed
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BARNETT CANVAS GOODS CO.

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FOR RENT

FOR RENT

3—600 gal. Distributor Tanks on International Trucks.
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3—2 ton Tandem C.H.&E. modern gas Rollers, with or without high speed trailers.

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This equipment has just been delivered in the past two months and is new with the exception of a 1938 gas roller.

1—Northwest Model 25 shovel, crane and backhoe attachment
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Dumps • Flatbeds
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Immediately available in quantity under lease or rental contracts.

We request invitations to bid.

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by bringing business needs or "opportunities" to the attention of other men associated in executive, management, sales and responsible technical, engineering and operating capacities with the industries served by the following McGraw-Hill publications.

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New York, N. Y.

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New or Second-hand

Advise what you have.

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BULLDOZER ATTACHMENT

One (1) used BULLDOZER ATTACHMENT Model BD-20—La Plante-Choate for caterpillar old Model 20 tractor.

CHARLES H. HOCH

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RELAYING RAIL

3000 tons of relaying rail with fastenings about 70 lb. section.

LAMOREUX KELLY LTD.

620 Cathcart St. Montreal

Gasoline Compressors Wanted

315, 2 stage, portable gasoline compressors; state age, make and price.

W-399, Engineering News-Record
330 W. 42nd St., New York, N. Y.

WANTED

Will pay cash

Euclid hauling equipment.

State full particulars, location and price.

JOHN ARBORIO, INC.

West Cedar Street Poughkeepsie, N. Y.

SEARCHLIGHT SECTION

TRACTORS—BULLDOZERS
RD-7 tractor, with bulldozer.
RD-6 Tractor-bulldozer.
International TD-40 tractor-bulldozer.
International T-18 Tractor-bulldozer.
D-4 Caterpillar tractor-bulldozer.
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100 ton Mikado steam loco. stand, gauge.
2—Whitcomb stand. ga. 4½ tons, gas.
2—Vulcan 36" gauge, 6 tons, gas.
1—Whitcomb 24" gauge, 3½ tons, gas.
8—3 yd. V type 36" gauge cars.

BUCKETS AND STONE SKIPS
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1—¾ yd. Hains rehandling clamshell.
22 Battleship type, 2 to 3 yds.

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1—Rex Model 190 with 800' pipe.
1—Rex Model 180 with 1,000' pipe.
1—Rex Model 160 with 500' 6" pipe.

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1—Marion Model 362 Diesel shovels, 1½
2—Lorain 77 Diesel Shovels, 1½ yd.
Lima 101 1¼ yd. crane-shovel-dragline.
Lima 101 gas crane, with 100' boom.
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P & H Tr. Cr., 3 axle, on pneumatics.
Northwest Model 105 gas shovel.
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Industrial loco. crane electric, 20 tons.
Bucy, Erie 41-B Steam Crane with 75' leads, No. 9-B-2 Hammer, oil fired.
Marion Model 32, 1¼ yd. steam shovel.

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1—B. K. Ready-Mix Concrete plant
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8" Goulds Duplex plunger, gas.
4" LaBour centrifugal, gas.
Worthington 24" vertical electric, 12,000
Morris 20" centrifugal, electric, 12,000

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1—Parsons Model 21 Trencher, 18" x 7'.
1—Parsons Model 30 trencher, 19½"x13'.
1—Parsons Model 40 trencher, 48"x14'.
2—Cleveland Baby Ditchers, Model 95.

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12"x12" Lidgerwood, 3 drum, steam hoist.
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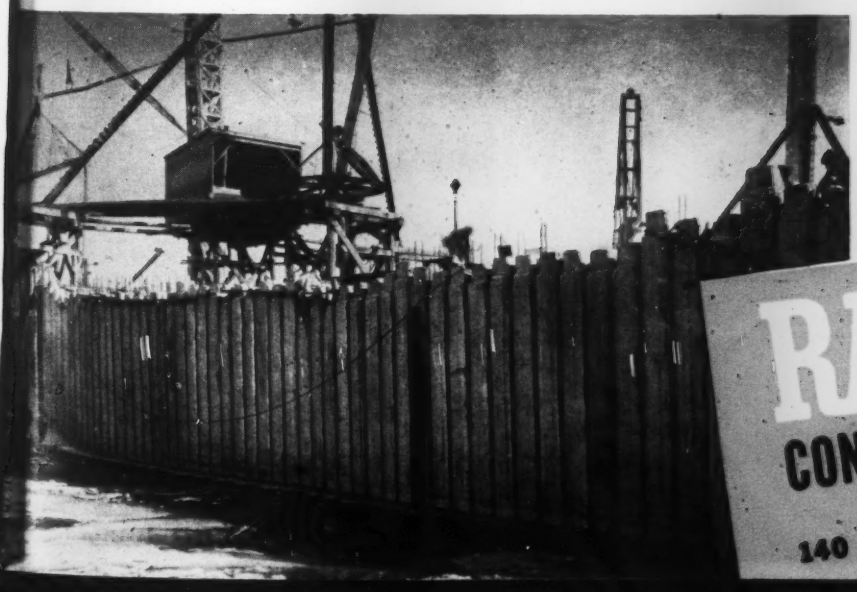

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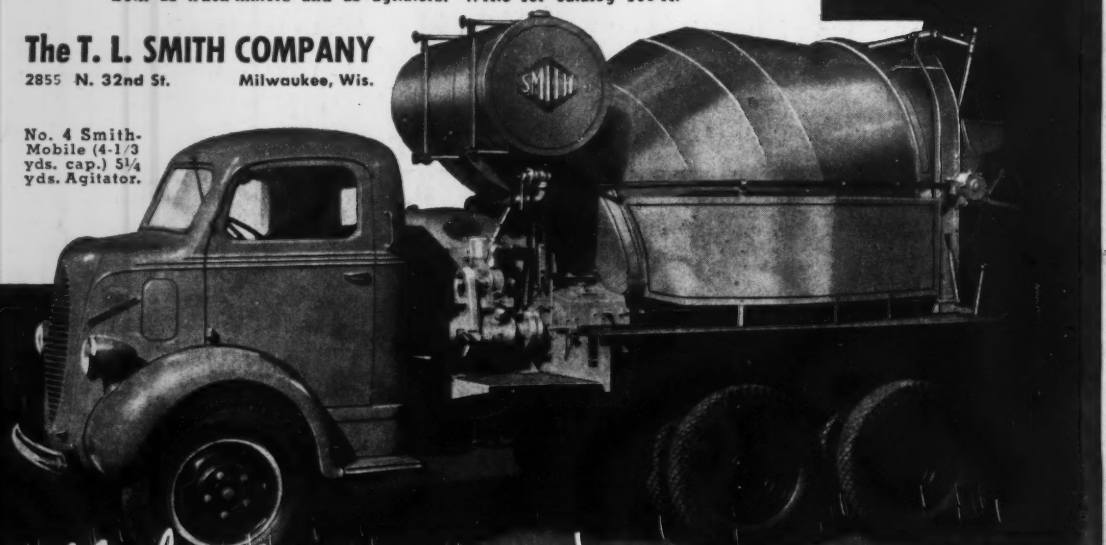

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